Virginia Department of Emergency Management

HAZARD RISK & VULNERABLE POPULATIONS

2021 HAZARD MITIGATION ASSISTANCE GRANTS EQUITY WORKSHOPS

The Deloitte Health360 Solution informs population vulnerability and enables a data-driven approach to operationalizing equity in mitigation projects. It is broken down into two components: Population Vulnerability and Hazard Risk. Both components are added together to identify potential priority areas to support future mitigation projects.

POPULATION VULNERABILITY

Provides a people-focused metric that can be combined with infrastructure, elevation, and financial metrics to support a holistic approach to mitigation planning.

HAZARD RISK

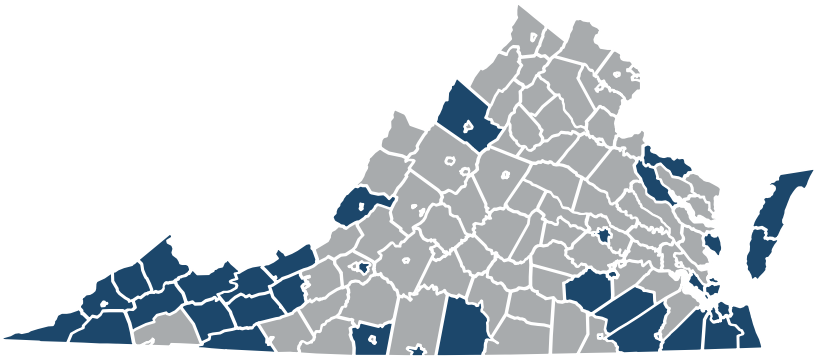
Reflects the number of households in each flood or hurricane zone weighted by risk severity to provide a people-focused risk metric.

PRIORITIZED CENSUS TRACTS

Combining population vulnerability and hazard risk at a sub-locality level can identify potential priority areas to support with future mitigation projects.

SERIES OBJECTIVES

1. Interpret data from the Deloitte Analysis and identify flooding risk in these areas.
2. Understand and explore potential solutions to hazard risk areas and vulnerable populations.
3. Educate stakeholders on funding programs such as FEMA hazard mitigation grants, CDBG grants, and the new CFP fund.
4. Discuss next steps, technical assistance needs, and training.



40 Localities Identified Scoring Over 70%

REGISTRATION https://odu.co1.qualtrics.com/jfe/form/SV_dd549WZWcIKVz3E

QUESTIONS? vdemgrants@vdem.virginia.gov

HAZARD RISK & POPULATION VULNERABILITY

Virginia Department of Emergency Management

SUBREGIONAL WORKSHOP

July 7, 2021 from 10am to 12pm

- Emporia
- Franklin City
- Southampton
- Suffolk
- Sussex

POPULATION VULNERABILITY

Provides a people-focused metric that can be combined with infrastructure, elevation, and financial metrics to support a holistic approach to mitigation planning.

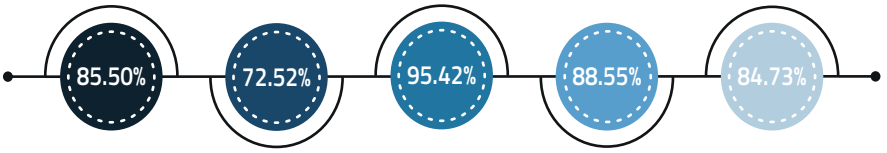
HAZARD RISK

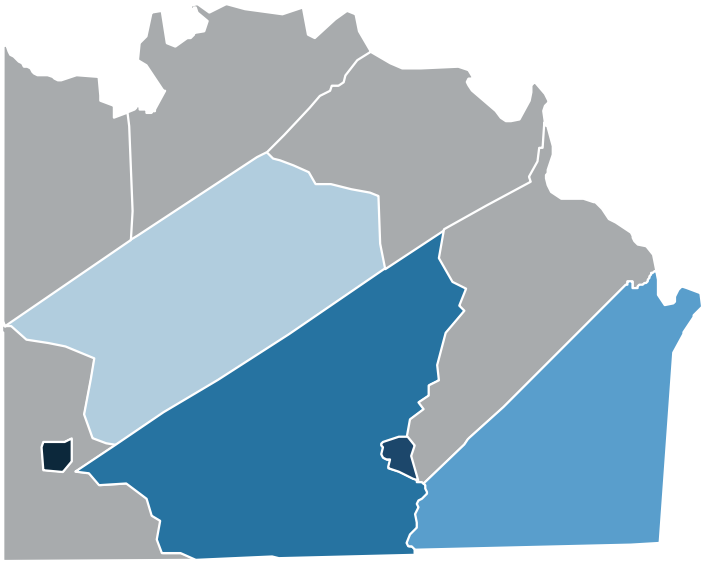
Reflects the number of house-holds in each flood or hurricane zone weighted by risk severity to provide a people-focused risk metric.

PRIORITIZED CENSUS TRACTS

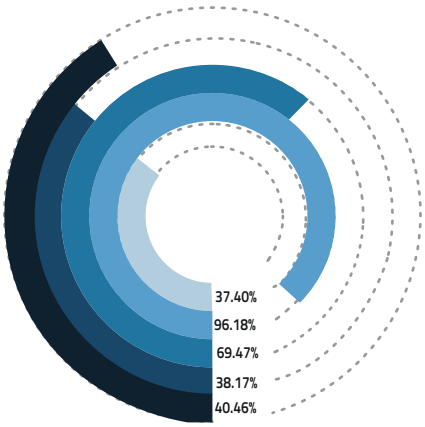
Combining population vulnerability and hazard risk at a sub-locality level can identify potential priority areas to support with future mitigation projects.

OVERALL PERCENTILE

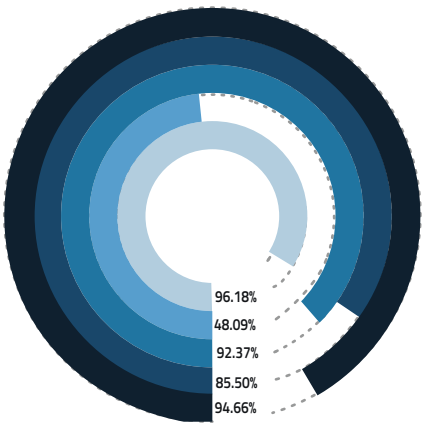




HAZARD RISK PERCENTILE



POPULATION VULNERABILITY PECENTILE



FACILITATED BY The Virginia Modeling, Analysis, and Simulation Center

COVID-19 Unified Command/VEST Health Equity Working Group

MITIGATION PROJECTS ANALYSIS
SUSSEX COUNTY

NOVEMBER 2020

Topics

The analysis provides **Sussex County** with information to support planning and preparation of projects for the Building Resilient Infrastructure and Communities (BRIC) grant application with an equity focus.

- ❑ Introduction to Data-Driven Approach
- ❑ Hazard Risk
- ❑ Population Vulnerability
- ❑ Summary
- ❑ FEMA Funding and Past Projects
- ❑ Considerations for Next Steps

This analysis ***expands the scope of population vulnerability*** to provide a ***data-driven equity lens*** for disaster mitigation project design

Data-Driven Approach

The Health360 platform informs population vulnerability and enables a data-driven approach to operationalizing equity in mitigation projects.

Powered By Health360

230M+
U.S. Adults Scored

Data updated every
1 Month

Contains over
1,500+
variables on Social Determinants of Health and other metrics

150+
Advanced predictive algorithms

400+
Variables used in the mortality predictive algorithm

Provides 360° view of a person

Algorithms rebuilt every 2 years

40+
Clients served

What is hazard risk and how is it calculated?

Household Hazard risk reflects the number of households in each flood or hurricane zone, weighted by severity.

Hazard Risk

Number of households in each zone:

Flood zones
- 100 year coastal
- 100 year riverine flood way
- 100 year riverine
- 500 year riverine

Hurricane zones
- Segmented A, B, C, D

- Households that reside in the flood and hurricane zones are considered to be **at-risk for environmental disasters**
- Hazard Risk reflects **the number of households located in Flood and Hurricane Zones**
- Hazard Risk is not a measure of **infrastructure, elevation, or financial risks**, but is a measure of the number of at-risk households in an area, weighted by the severity of the risk, to **provide a people-focused risk metric**

Note: Severity of the risk per household is captured on an ordinal scale from 1 – least severe (Hurricane Zone D, 500 Year Riverine) to 4 – most severe (Hurricane Zone A, 100 Year Coastal)

Hazard Risk = (# of Households Analyzed in Particular Hurricane or Flood Zones) X (Specified Zone Risk Level (1 through 4 depending on risk severity))

Hazard Risk in Your Locality

The figures below indicate how your locality's hazard risk[1] compares to others in Virginia as well as how many households reside in each flood or hurricane zone.

Hazard Risk[1] Percentile

37th

Your locality has more households in more severe flood/hurricane zones than 37% of other Virginia localities

Hazard Risk[1] Rank

83rd

Your locality's Hazard Risk score is ranked 83rd out of 132 Virginia localities

Households in Flood Zones & Locality Rank

← Severity			
100 Year Coastal	100 Year Riverine Floodway	100 Year Riverine	500 Year Riverine
0	13	145	41
N/A out of 132 Localities	43rd out of 132 Localities	75th out of 132 Localities	66th out of 132 Localities

Flood zones are geographic areas that FEMA has defined according to varying levels of flood risk

Households in Hurricane Zones & Locality Rank

← Severity			
Zone A	Zone B	Zone C	Zone D
0	0	0	0
N/A out of 132 Localities	N/A out of 132 Localities	N/A out of 132 Localities	N/A out of 132 Localities

Evacuation zones designated as A through D are in place across coastal Virginia

1. Hazard risk reflects the number of households located in Flood and Hurricane Zones, weighted by severity
2. Note that the total sum of households may be more than the households in your locality because some are located in both flood and hurricane zones

What is population vulnerability and how is it calculated?

The Population Vulnerability score provides a people-focused metric that can be combined with infrastructure, elevation, and financial metrics to support a holistic approach to mitigation planning.

Population Vulnerability

Prevalence of:

1. Communities of color
2. Elevated health risk
3. Low income
4. # of people in household
5. # of children in household
6. Unemployment risk
7. Age (older adults)
8. Lack of vehicle access

- Population Vulnerability **expands upon the 2018 Virginia Hazard Mitigation plan definition** of population vulnerability (density and percentage of total population)
- Population Vulnerability **only considers localities with households in flood or hurricane zones (132 localities)**
- Population Vulnerability **identifies the locality and census blocks/Census Blocks** with the most vulnerable individuals/households on average
- Population Vulnerability should be interpreted as a **household's ability to safely respond** to an environmental disaster

Population Vulnerability in Your Locality

The figures below indicate how your locality's population vulnerability[1] score and composite attributes compare to other localities in Virginia.

Population Vulnerability[1] Percentile

96th

On average, a household in a flood or hurricane zone in your locality is more vulnerable than a household in 96% of other Virginia localities

Population Vulnerability[1] Rank

6th

Your locality's Population Vulnerability score is ranked 6th out of 132 Virginia localities

How SUSSEX COUNTY Compares to Other Localities Across the Eight Vulnerability Attributes

Low Income	Elevated Health Risk	Age	Communities of Color
75th percentile	81st percentile	34th percentile	98th percentile

# of Children in Household	# of People in Household	Unemployment Risk	Lack of Vehicle Access
50th percentile	44th percentile	59th percentile	73rd percentile

1. Population Vulnerability should be interpreted as a household's ability to safely respond to an environmental disaster and only considers households located in flood or hurricane zones

Population Vulnerability & Hazard Risk Summary

Understanding population vulnerability and hazard risk in your locality can help support future mitigation projects.

Population Vulnerability[1] Percentile

96th

On average, a household in a flood or hurricane zone in your locality is more vulnerable than a household in 96% of other Virginia localities

Hazard Risk[2] Percentile

37th

Your locality has more households in more severe flood/hurricane zones than 37% of other Virginia localities

Population Vulnerability[1] Rank

6th

Your locality's Population Vulnerability score is ranked 6th out of 132 Virginia localities

Hazard Risk[2] Rank

83rd

Your locality's Hazard Risk score is ranked 83rd out of 132 Virginia localities

1. Population Vulnerability should be interpreted as a household's ability to safely respond to an environmental disaster and only considers households located in flood or hurricane zones
2. Hazard risk reflects the number of households located in Flood and Hurricane Zones, weighted by severity

Review of FEMA Funding & Past Mitigation Projects

Review of Mitigation Projects In Your Locality

The figures below provide information regarding mitigation projects[1] in your locality from 1990-2019 that may be helpful to consider in planning potential future mitigation projects.

Total Exclusive Project Funding[1]

$0

This is the total amount of federal funding alloted to mitigation projects solely owned by your locality from 1990-2019

Total Shared Project Funding[1]

$442,500

This is the total amount of federal funding allotted to mitigation projects owned by your locality and at least 1 other from 1990-2019

Exclusive Projects

0

Average Project Size

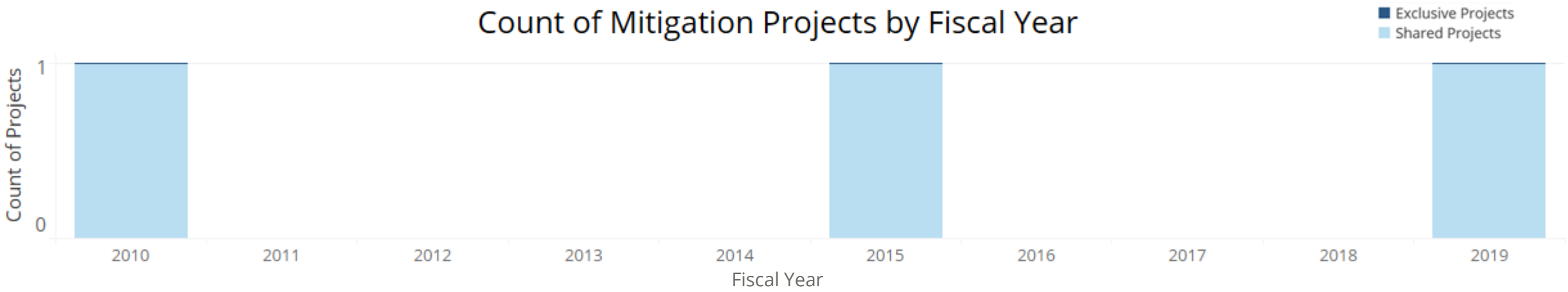
$0

Shared Projects

3

Average Counties Per Project

17.0

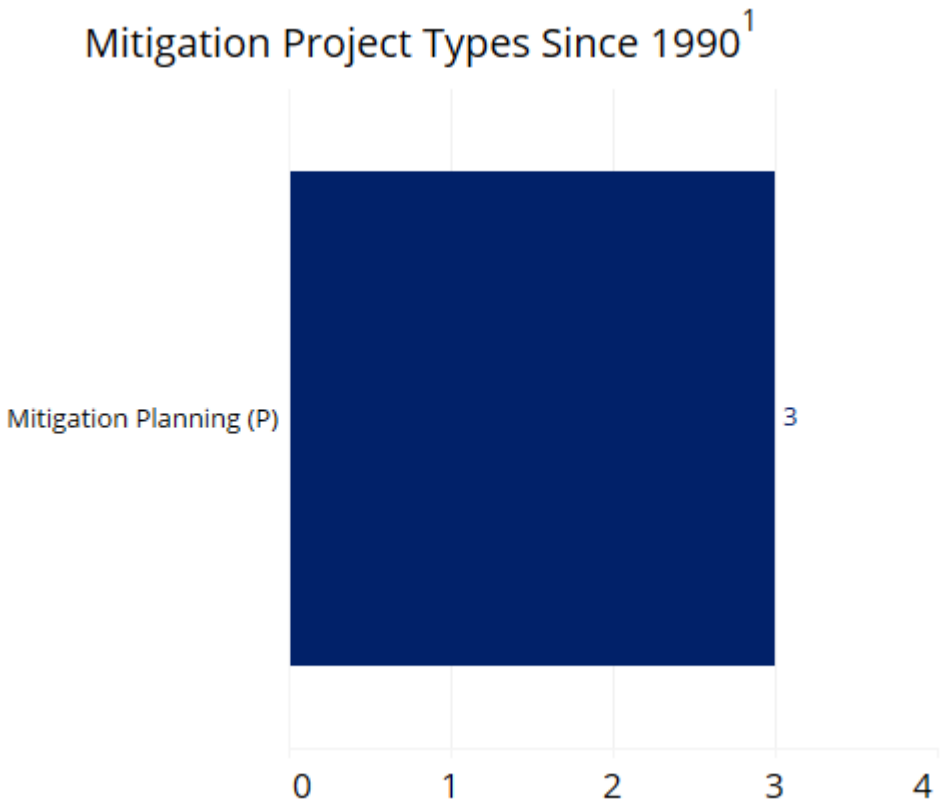


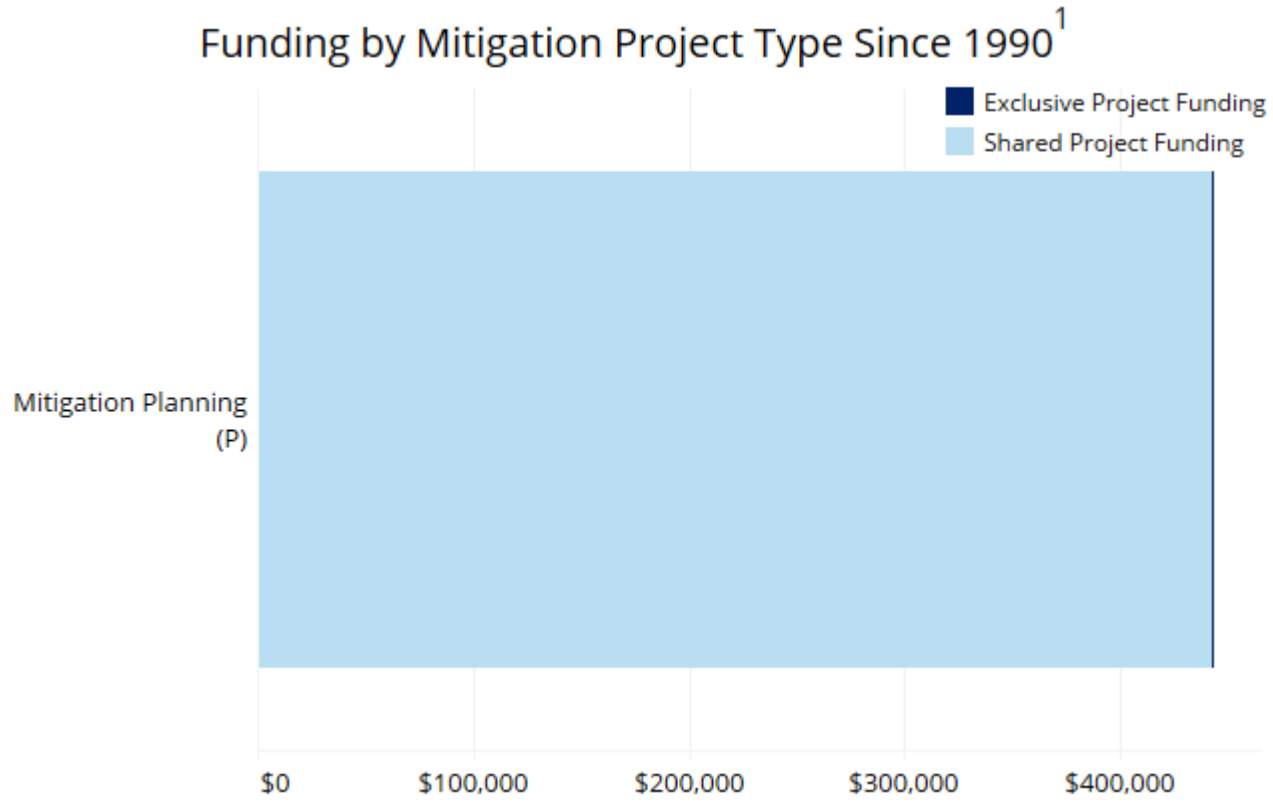
1. Source: FEMA Hazard Mitigation Projects-V2 dataset from fema.gov

Note: see the appendix for a complete data table of these mitigation projects

Past Mitigation Projects – Top Project Types

The figures below provide information regarding mitigation projects[1] in your locality from 1990-2019 that may be helpful to consider in planning potential future mitigation projects.





1. Source: FEMA Hazard Mitigation Projects-V2 dataset from fema.gov

Note: see the appendix for a complete data table of these mitigation projects

COVID-19 Impacts

COVID-19 In Your Locality

Since the beginning of the COVID-19 Pandemic, Sussex County has experienced the following:

Cases[1]

Total	Per 100k
649	**5,650**
49th out of 133 localities[2]	**4th** out of 133 localities

Hospitalizations[1]

Total	Per 100k
29	**252**
66th out of 133 localities	**15th** out of 133 localities

Deaths[1]

Total	Per 100k
12	**104**
56th out of 133 localities	**15th** out of 133 localities

1. COVID-19 case, hospitalization, and death figures are sourced from the Virginia Department of Health as of **10/19/2020**
2. COVID-19 Impact rankings are for all 133 Virginia localities, rather than the 132 included in the BRIC analysis for having at least one household in a flood or hurricane zone

Considerations for Next Steps

Considerations for Next Steps

When evaluating future mitigation project opportunities, the population vulnerability and hazard risk metrics can supplement existing measures to design mitigation projects with an equity lens.

- Consider **population vulnerability** and it's various components to support decisions on mitigation projects
- Consider **supplementing these people-focused metrics** with existing infrastructure, elevation, and financial analysis for a holistic mitigation planning approach that includes equity considerations
- Consider **past project types** and **prior funding** in the overall mitigation strategy

Appendix

What is population vulnerability and how is it calculated? *continued*

The vulnerability score for each Virginia household reflects an estimate of the household's ability to safely respond in the event of an environmental disaster.

Population Vulnerability

Attribute[1]	Weighting[2]	Description (in a household)
Low Income	18%	Number of adults with income less than $30,000
Elevated Health Risk	17%	Number of adults with one or more serious health conditions
Age (Older Adults)	15%	Number of adults who are age 65 and older
Communities of Color	13%	Number of Black or African American or Hispanic or Latino adults
# of Children in Household	12%	Number of children
# of People in Household	10%	Number of adults and children
Unemployment Risk	8%	Number of adults at high risk of unemployment
Lack of Vehicle Access	6%	Does the household lack access to a motor vehicle?

1. Two attributes - English as a Primary Language and Prevalence of Mobile Housing - were dropped from consideration based on the 8/20/2020 BRIC Working Group Session
2. Attribute contributions to Population Vulnerability were weighted as a result of the BRIC Working Group Session on 8/20/2020

Data table | FEMA Funding[1]

Grantee	Year of Fiscal Year	Exclusive vs Shared	Subgrantee	Project Counties	Project Type(s)	Federal Funds Obligated
SUSSEX COUNTY	2019	Shared	RICHMOND REGIONAL PLANNING DIST COMMISSION	PETERSBURG (CITY); EMPORIA (CITY); COLONIAL HEIGHTS (CITY; CHARLES CITY; CHESTERFIELD; DINWIDDIE; GOOCHLAND; GREENSVILLE; HANOVER; HENRICO; NEW KENT; POWHATAN; PRINCE GEORGE; HOPEWELL (CITY); SURRY; SUSSEX; RICHMOND (CITY)	91.5: Local Multijurisdictional Multihazard Mitigation Plan - UPDATE	$187,500
	2015	Shared	Richmond Regional Planning District Commission	CHARLES CITY; CHESTERFIELD; COLONIAL HEIGHTS CITY; DINWIDDIE; EMPORIA CITY; GOOCHLAND; GREENSVILLE; HANOVER; HENRICO; HOPEWELL CITY; NEW KENT; PETERSBURG CITY; POWHATAN; PRINCE GEORGE; RICHMOND CITY; SURRY; SUSSEX	91.1: Local Multihazard Mitigation Plan	$135,000
	2010	Shared	Richmond and Crater PDC	CHARLES CITY; CHESTERFIELD; COLONIAL HEIGHTS CITY; DINWIDDIE; EMPORIA CITY; GOOCHLAND; GREENSVILLE; HANOVER; HENRICO; HOPEWELL CITY; NEW KENT; PETERSBURG CITY; POWHATAN; PRINCE GEORGE; RICHMOND CITY; SURRY; SUSSEX	91.1: Local Multihazard Mitigation Plan	$120,000

1. Source: FEMA Hazard Mitigation Projects-V2 dataset from fema.gov

COVID-19 Unified Command/VEST Health Equity Working Group

MITIGATION PROJECTS ANALYSIS
SUFFOLK CITY

NOVEMBER 2020

Topics

The analysis provides **Suffolk City** with information to support planning and preparation of projects for the Building Resilient Infrastructure and Communities (BRIC) grant application with an equity focus.

- ❑ Introduction to Data-Driven Approach
- ❑ Hazard Risk
- ❑ Population Vulnerability
- ❑ Prioritization
- ❑ FEMA Funding and Past Projects
- ❑ Considerations for Next Steps

This analysis ***expands the scope of population vulnerability*** to provide a ***data-driven equity lens*** for disaster mitigation project design

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The Health360 platform informs population vulnerability and enables a data-driven approach to operationalizing equity in mitigation projects.

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150+
Advanced predictive algorithms

400+
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Provides 360° view of a person

Algorithms rebuilt every 2 years

40+
Clients served

What is hazard risk and how is it calculated?

Household Hazard risk reflects the number of households in each flood or hurricane zone, weighted by severity.

Hazard Risk

Number of households in each zone:

Flood zones
- 100 year coastal
- 100 year riverine flood way
- 100 year riverine
- 500 year riverine

Hurricane zones
- Segmented A, B, C, D

- Households that reside in the flood and hurricane zones are considered to be **at-risk for environmental disasters**
- Hazard Risk reflects **the number of households located in Flood and Hurricane Zones**
- Hazard Risk is not a measure of **infrastructure, elevation, or financial risks**, but is a measure of the number of at-risk households in an area, weighted by the severity of the risk, to **provide a people-focused risk metric**

Note: Severity of the risk per household is captured on an ordinal scale from 1 – least severe (Hurricane Zone D, 500 Year Riverine) to 4 – most severe (Hurricane Zone A, 100 Year Coastal)

Hazard Risk = (# of Households in Particular Hurricane or Flood Zones) X (Specified Zone Risk Level (1 through 4 depending on risk severity))

Hazard Risk in Your Locality

The figures below indicate how your locality's hazard risk[1] compares to others in Virginia as well as how many households reside in each flood or hurricane zone.

Hazard Risk[1] Percentile

96th

Your locality has more households in more severe flood/hurricane zones than 96% of other Virginia localities

Hazard Risk[1] Rank

6th

Your locality's Hazard Risk score is ranked 6th out of 132 Virginia localities

Households in Flood Zones & Locality Rank

← Severity			
100 Year Coastal	100 Year Riverine Floodway	100 Year Riverine	500 Year Riverine
7	0	165	223
6th out of 132 Localities	N/A out of 132 Localities	68th out of 132 Localities	33rd out of 132 Localities

Flood zones are geographic areas that FEMA has defined according to varying levels of flood risk

Households in Hurricane Zones & Locality Rank

← Severity			
Zone A	Zone B	Zone C	Zone D
449	1,226	11,204	12,472
15th out of 132 Localities	13th out of 132 Localities	6th out of 132 Localities	4th out of 132 Localities

Evacuation zones designated as A through D are in place across coastal Virginia

1. Hazard risk reflects the number of households located in Flood and Hurricane Zones, weighted by severity
2. Note that the total sum of households may be more than the households in your locality because some are located in both flood and hurricane zones

What is population vulnerability and how is it calculated?

The Population Vulnerability score provides a people-focused metric that can be combined with infrastructure, elevation, and financial metrics to support a holistic approach to mitigation planning.

Population Vulnerability

Prevalence of:

1. Communities of color
2. Elevated health risk
3. Low income
4. # of people in household
5. # of children in household
6. Unemployment risk
7. Age (older adults)
8. Lack of vehicle access

- Population Vulnerability **expands upon the 2018 Virginia Hazard Mitigation plan definition** of population vulnerability (density and percentage of total population)
- Population Vulnerability **only considers localities with households in flood or hurricane zones (132 localities)**
- Population Vulnerability **identifies the locality and census tracts/census blocks** with the most vulnerable individuals/households on average
- Population Vulnerability should be interpreted as a **household's ability to safely respond** to an environmental disaster

Population Vulnerability in Your Locality

The figures below indicate how your locality's population vulnerability[1] score and composite attributes compare to other localities in Virginia.

Population Vulnerability[1] Percentile

48th

On average, a household in a flood or hurricane zone in your locality is more vulnerable than a household in 48% of other Virginia localities

Population Vulnerability[1] Rank

69th

Your locality's Population Vulnerability score is ranked 69th out of 132 Virginia localities

How SUFFOLK CITY Compares to Other Localities Across the Eight Vulnerability Attributes

Low Income	Elevated Health Risk	Age	Communities of Color
23rd percentile	**19th** percentile	**19th** percentile	**89th** percentile

# of Children in Household	# of People in Household	Unemployment Risk	Lack of Vehicle Access
95th percentile	**86th** percentile	**35th** percentile	**33rd** percentile

1. Population Vulnerability should be interpreted as a household's ability to safely respond to an environmental disaster and only considers households located in flood or hurricane zones

Using Population Vulnerability & Hazard Risk to Prioritize Census Tracts

Combining population vulnerability and hazard risk at a sub-locality level can identify potential priority areas to support with future mitigation projects.

Population Vulnerability

Prevalence of:

1. Communities of color
2. Elevated health risk
3. Low income
4. # of people in household
5. # of children in household
6. Unemployment risk
7. Age (older adults)
8. Lack of vehicle access

+

Hazard Risk

Number of households in each zone:

Flood zones

- 100 year coastal
- 100 year riverine floodway
- 100 year riverine
- 500 year riverine

Hurricane zones

- Segmented A, B, C, D

=

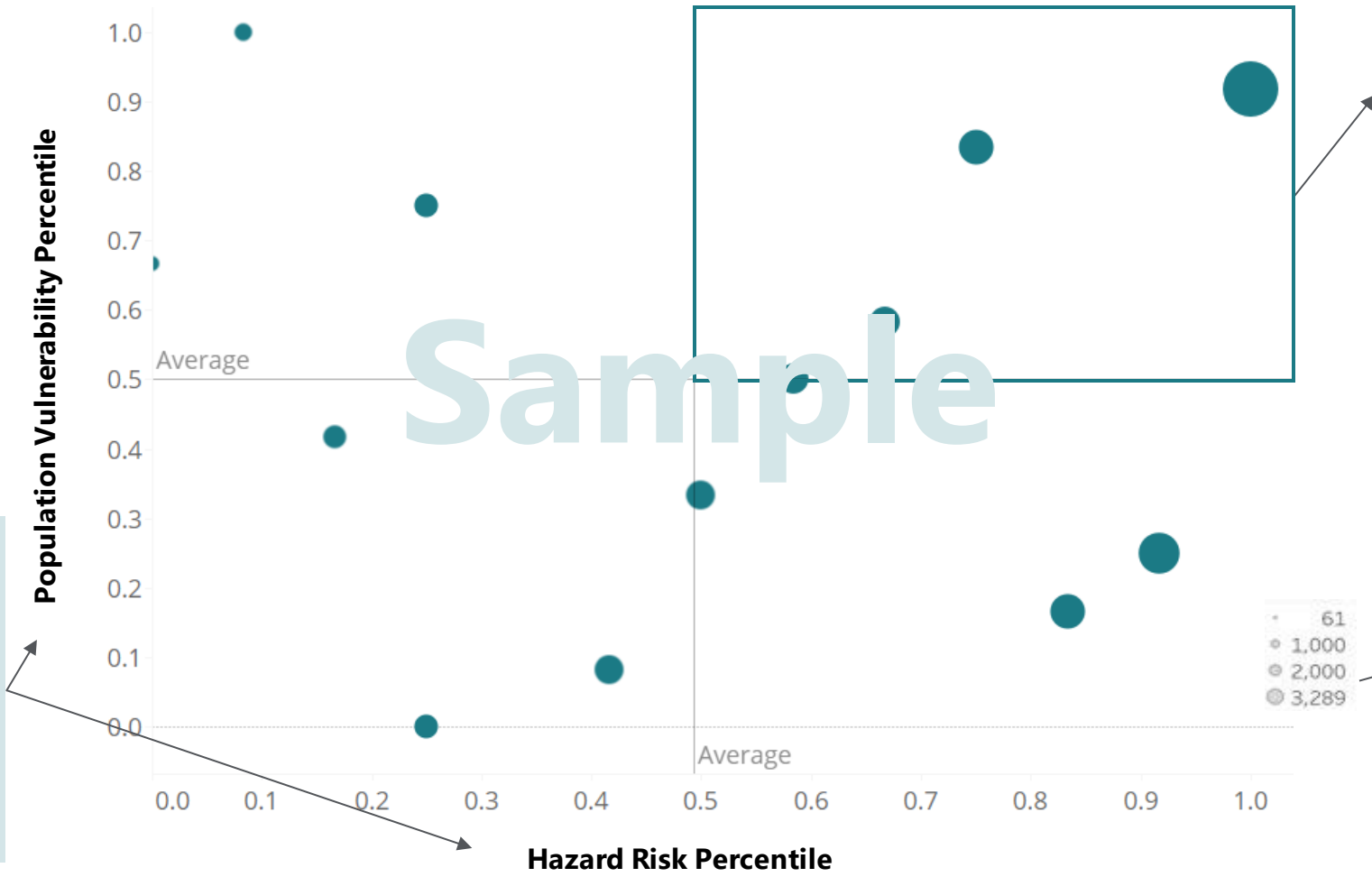
Prioritized Census Tracts

- High Population Vulnerability
- High Hazard Risk

Census tracts with both more households in severe flood/hurricane zones AND households with more vulnerable occupants

How to interpret the Census Tract plots

The chart below represents a *sample* locality and offers guidance on how to interpret the information when planning mitigation efforts.



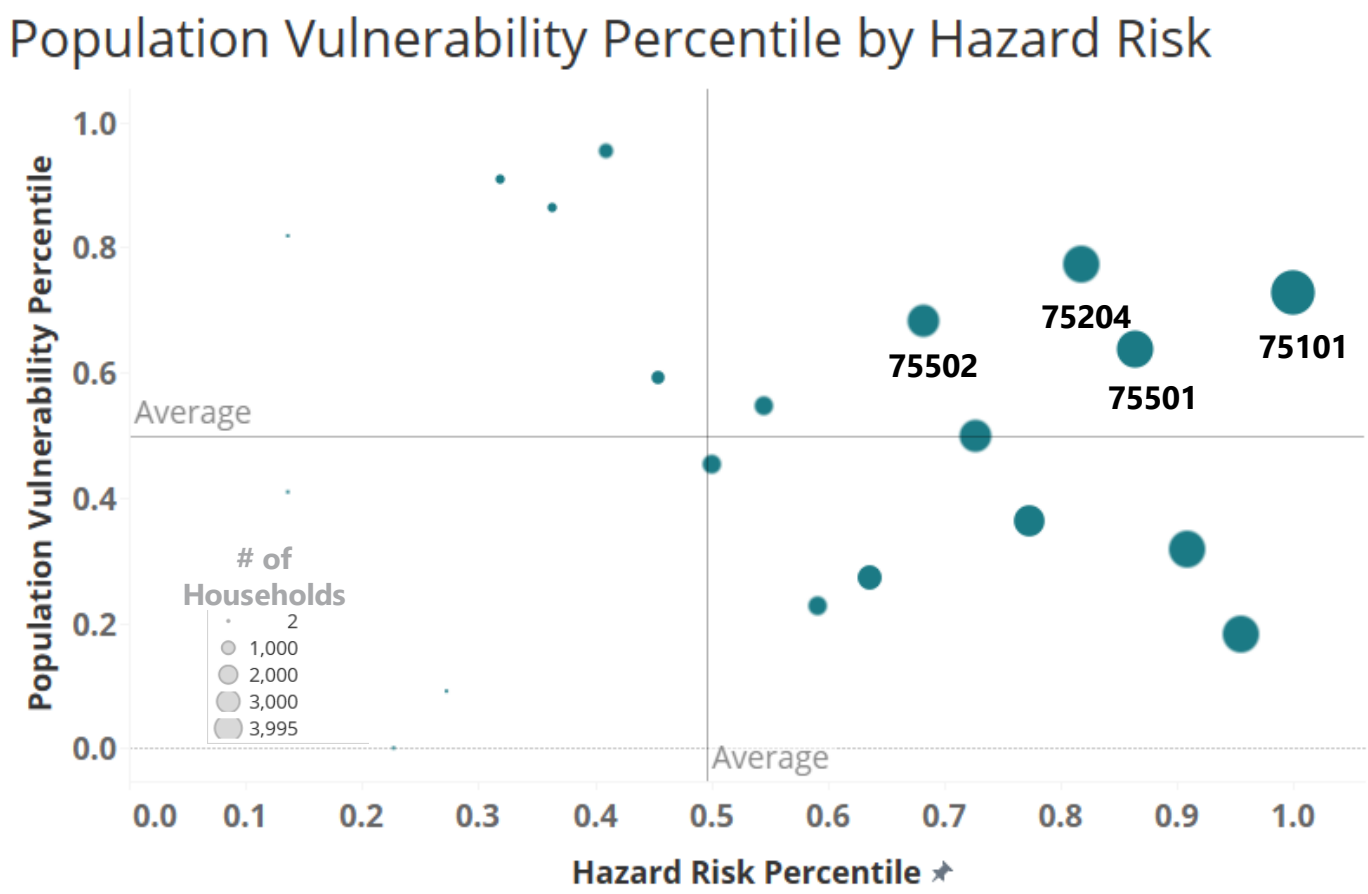
Circles in the upper right quadrant represent areas that you might consider prioritizing due to high population vulnerability and hazard risk

The x- and y-axes measure the percentiles of hazard risk and population vulnerability for each area

Size of the circle indicates the number of households in each area

Prioritizing Census Tracts in Suffolk City

Areas with the most vulnerable populations and households in severe flood and hurricane zones present prioritization opportunities for mitigation projects.



Priority Areas in Flood and Hurricane Zones

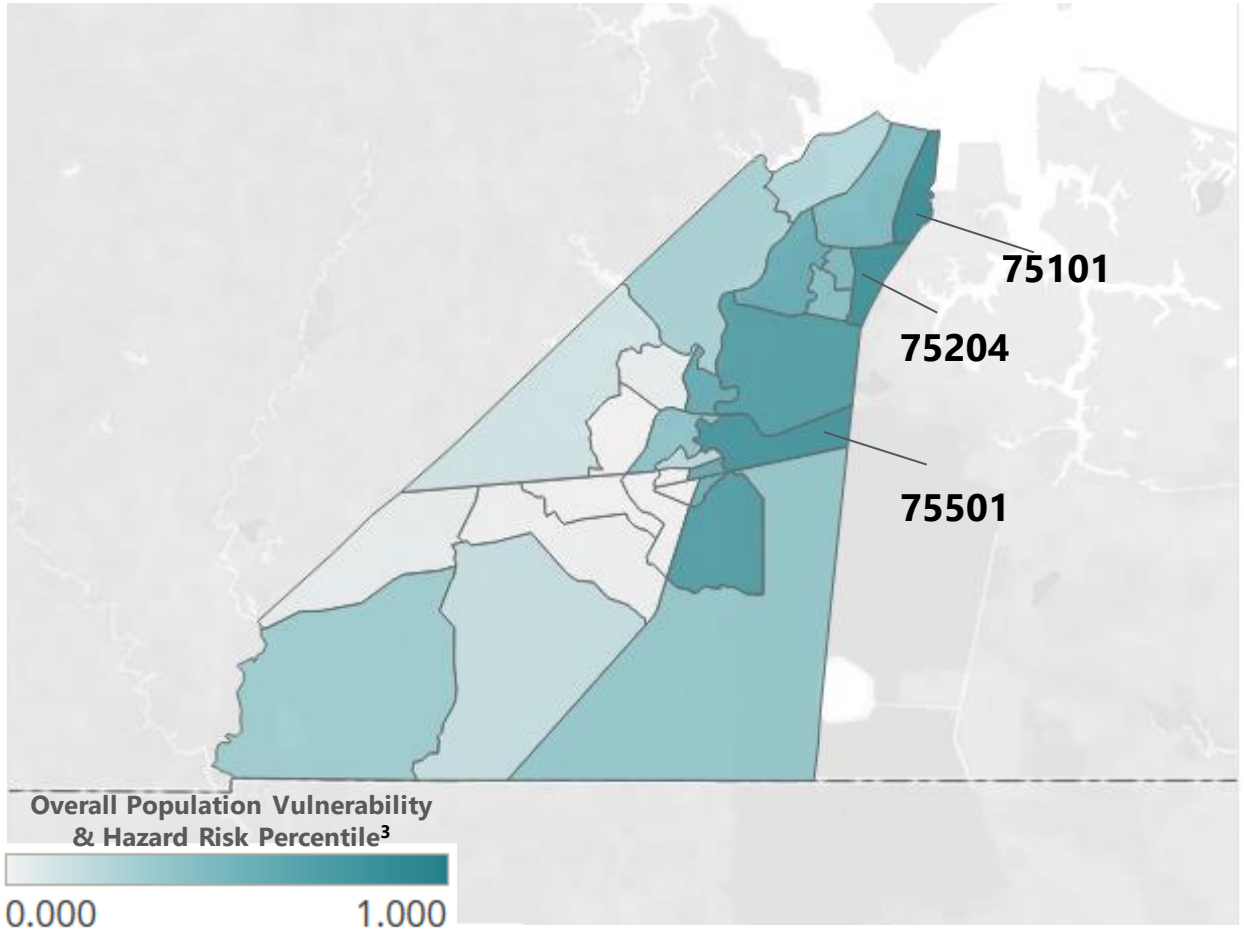
			Within-Suffolk City Percentiles		
#	Area	# of Households	Overall Percentile	Population Vulnerability[1] Percentile	Hazard Risk[2] Percentile
1	75101	3,995	100th	73rd	100th
2	75204	2,749	95th	77th	82nd
3	75501	2,786	91st	64th	86th
4	75502	2,092	82nd	68th	68th
5	75601	437	82nd	95th	41st
6	75201	2,510	68th	32nd	91st
7	75402	2,206	68th	50th	73rd
8	65100	175	68th	91st	32nd

1. Population Vulnerability should be interpreted as a household's ability to safely respond to an environmental disaster and only considers households located in flood or hurricane zones
2. Hazard risk reflects the number of households located in Flood and Hurricane Zones, weighted by severity

Prioritizing Census Tracts in Suffolk City continued

Areas with the most vulnerable populations and households in severe flood and hurricane zones present prioritization opportunities for mitigation projects.

Potential Priority Areas in Suffolk City



Priority Areas in Flood and Hurricane Zones

			Within-Suffolk City Percentiles		
#	Area	# of Households	Overall Percentile	Population Vulnerability[1] Percentile	Hazard Risk[2] Percentile
1	75101	3,995	100th	73rd	100th
2	75204	2,749	95th	77th	82nd
3	75501	2,786	91st	64th	86th
4	75502	2,092	82nd	68th	68th
5	75601	437	82nd	95th	41st
6	75201	2,510	68th	32nd	91st
7	75402	2,206	68th	50th	73rd
8	65100	175	68th	91st	32nd

1. Population Vulnerability should be interpreted as a household's ability to safely respond to an environmental disaster and only considers households located in flood or hurricane zones
2. Hazard risk reflects the number of households located in Flood and Hurricane Zones, weighted by severity
3. Sub-localities at the 0th percentile (areas in white) do not have households in Flood or Hurricane Zones

Priority Census Tracts Summary

When evaluating future mitigation project opportunities, it may be helpful to consider the underlying attributes of population vulnerability and the number of houses in each flood/hurricane zone.

			Within-Suffolk City Percentiles										
#	Census Tract	# of Households	Overall	Population Vulnerability[1]	Communities of Color	Elevated Health Risk	Low Income	# of People	# of Children	Unemployment Risk	Age	Lack of Vehicle Access
1	**75101**	**3,995**	**100th**	**73rd**	86th	59th	59th	45th	64th	59th	5th	82nd
2	**75204**	**2,749**	**95th**	**77th**	82nd	73rd	82nd	27th	45th	91st	18th	73rd
3	**75501**	**2,786**	**91st**	**64th**	59th	18th	73rd	32nd	41st	82nd	27th	91st

			W/I-Suffolk City Percentiles		Suffolk City Household Counts[3]							
#	Census Tract	# of Households	Overall	Hazard Risk[2]	100 Year Coastal	100 Year Riverine FW	100 Year Riverine	500 Year Riverine	Hurr. Zone A	Hurr. Zone B	Hurr. Zone C	Hurr Zone D
1	**75101**	**3,995**	**100th**	**100th**	0	0	7	130	189	0	2719	1087
2	**75204**	**2,749**	**95th**	**82nd**	0	0	0	0	0	0	2	2747
3	**75501**	**2,786**	**91st**	**86th**	0	0	4	6	14	0	0	2772

1. Population Vulnerability should be interpreted as an average household's ability to safely respond to an environmental disaster and only considers households located in flood or hurricane zones
2. Hazard risk reflects the number of households located in Flood and Hurricane Zones, weighted by severity
3. Note that the total sum of households may be more than the households in your locality because some are located in both flood and hurricane zones

Review of FEMA Funding & Past Mitigation Projects

Review of Mitigation Projects In Your Locality

The figures below provide information regarding mitigation projects[1] in your locality from 1990-2019 that may be helpful to consider in planning potential future mitigation projects.

Total Exclusive Project Funding[1]

$0

This is the total amount of federal funding alloted to mitigation projects solely owned by your locality from 1990-2019

Total Shared Project Funding[1]

$255,941

This is the total amount of federal funding allotted to mitigation projects owned by your locality and at least 1 other from 1990-2019

Exclusive Projects

0

Average Exclusive Project Size

$0

Shared Projects

2

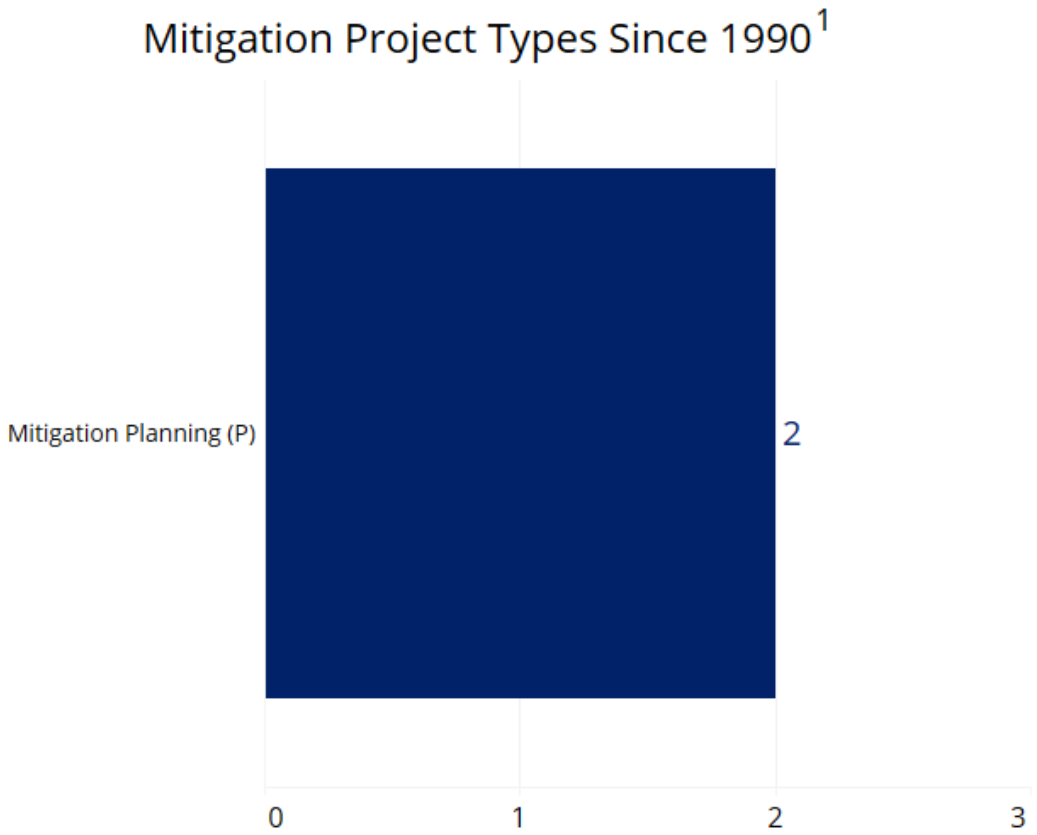
Average Counties Per Shared Project

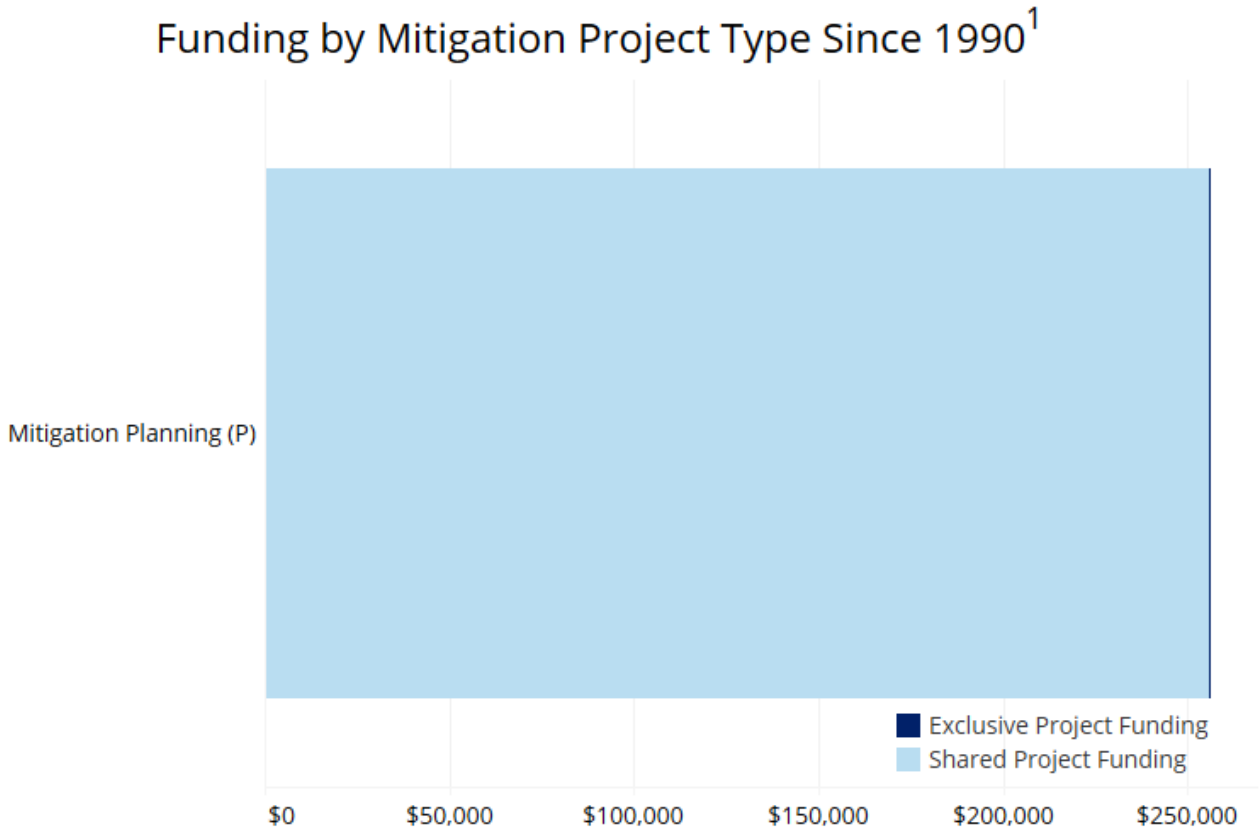
9.5

1. Source: FEMA Hazard Mitigation Projects-V2 dataset from fema.gov

Past Mitigation Projects – Top Project Types

The figures below provide information regarding mitigation projects[1] in your locality from 1990-2019 that may be helpful to consider in planning potential future mitigation projects.





1. Source: FEMA Hazard Mitigation Projects-V2 dataset from fema.gov

COVID-19 Impacts

COVID-19 In Your Locality

Since the beginning of the COVID-19 Pandemic, Suffolk City has experienced the following:

Cases[1]		Hospitalizations[1]		Deaths[1]	
Total	Per 100k	Total	Per 100k	Total	Per 100k
2,284	**2,562**	**134**	**150**	**78**	**87**
19th out of 133 localities[2]	**29th** out of 133 localities	**15th** out of 133 localities	**45th** out of 133 localities	**9th** out of 133 localities	**21st** out of 133 localities

1. COVID-19 case, hospitalization, and death figures are sourced from the Virginia Department of Health as of **10/26/2020**
2. COVID-19 Impact rankings are for all 133 Virginia localities, rather than the 132 included in the BRIC analysis for having at least one household in a flood or hurricane zone

Considerations for Next Steps

Considerations for Next Steps

When evaluating future mitigation project opportunities, the population vulnerability and hazard risk metrics can supplement existing measures to design mitigation projects with an equity lens.

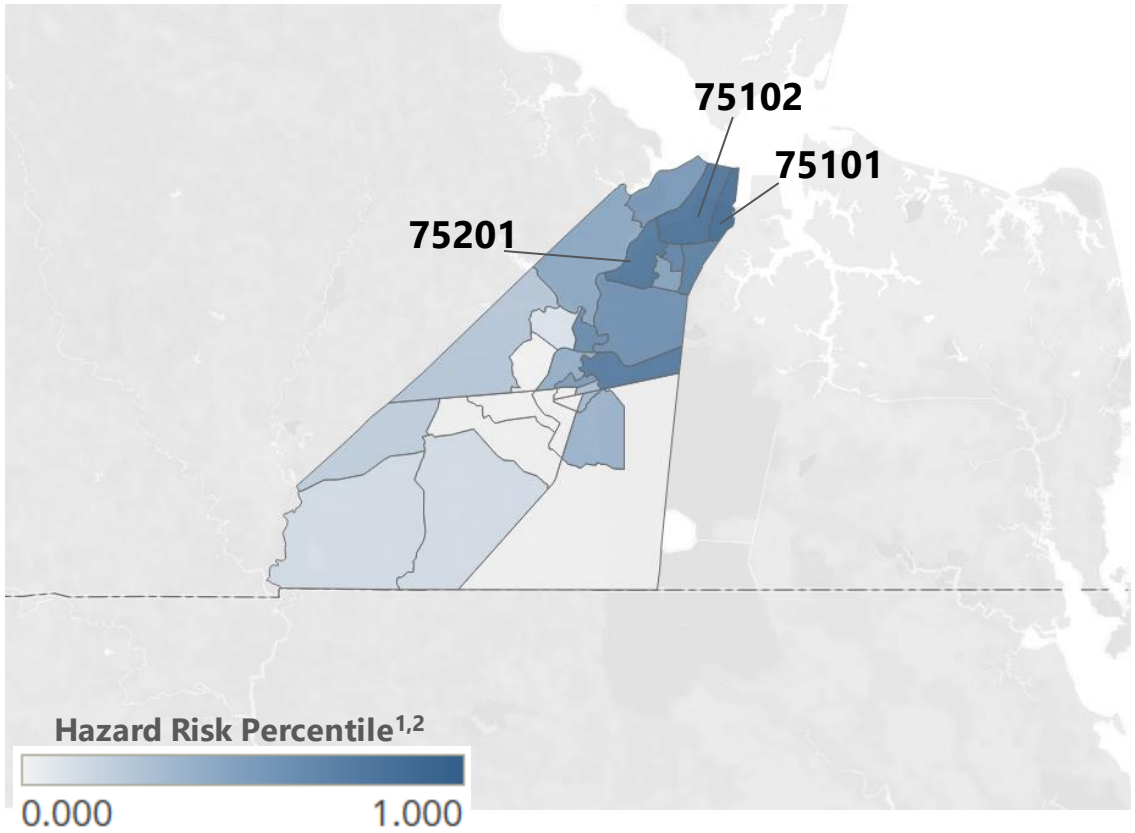
- Consider targeting **priority areas** when designing future mitigation projects
- Consider analysis at the **census tract/block level** to understand population vulnerability and hazard risks at a granular level to support decisions on mitigation projects
- Consider **supplementing these people-focused metrics** with existing infrastructure, elevation, and financial analysis for a holistic mitigation planning approach that includes equity considerations
- Consider **past project types** and **prior funding** in the overall mitigation strategy

Appendix

What areas in your locality have the greatest hazard risk?

When designing mitigation projects, it may be helpful to consider specific census tracts that have the greatest number of households residing in the more severe flood and/or hurricane zones.

Hazard Risk[1] in Suffolk City



Top-5 Census Tracts for Hazard Risk[1]

				Suffolk City Household Counts							
#	Census Tract	# of House-holds	Hazard Risk Percentile	100 Year Coastal	100 Year Riverine FW	100 Year Riverine	500 Year Riverine	Hurr. Zone A	Hurr. Zone B	Hurr. Zone C	Hurr. Zone D
1	**75101**	**3,995**	**100th**	0	0	7	130	189	0	2719	1087
2	**75102**	**2,585**	**95th**	0	0	3	2	119	0	2345	121
3	**75201**	**2,510**	**91st**	0	0	0	11	12	0	2348	150
4	**75501**	**2,786**	**86th**	0	0	4	6	14	0	0	2772
5	**75204**	**2,749**	**82nd**	0	0	0	0	0	0	2	2747

Note: see the appendix for a data table for the Top 15 Census Tracts

1. Hazard risk reflects the number of households located in Flood and Hurricane Zones, weighted by severity
2. Census tracts at the 0th percentile (areas in white) do not have households in Flood or Hurricane Zones

What is population vulnerability and how is it calculated? *continued*

The vulnerability score for each Virginia household reflects an estimate of the household's ability to safely respond in the event of an environmental disaster.

Population Vulnerability

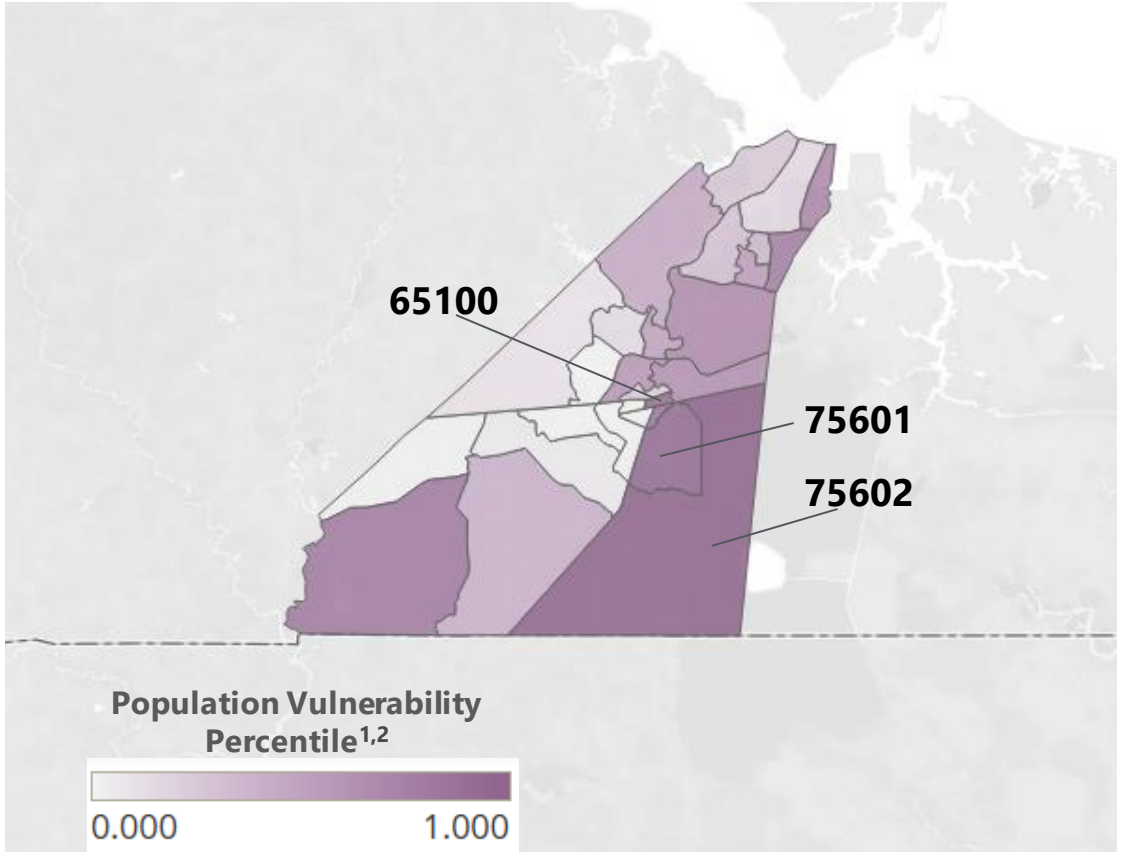
Attribute[1]	Weighting[2]	Description (in a household)
Low Income	18%	Number of adults with income less than $30,000
Elevated Health Risk	17%	Number of adults with one or more serious health conditions
Age (Older Adults)	15%	Number of adults who are age 65 and older
Communities of Color	13%	Number of Black or African American or Hispanic or Latino adults
# of Children in Household	12%	Number of children
# of People in Household	10%	Number of adults and children
Unemployment Risk	8%	Number of adults at high risk of unemployment
Lack of Vehicle Access	6%	Does the household lack access to a motor vehicle?

1. Two attributes - English as a Primary Language and Prevalence of Mobile Housing - were dropped from consideration based on the 8/20/2020 BRIC Working Group Session
2. Attribute contributions to Population Vulnerability were weighted as a result of the BRIC Working Group Session on 8/20/2020

What areas in your locality have the greatest population vulnerability?

When designing mitigation projects, it may be helpful to consider specific census tracts that are home to the most vulnerable individuals in the event of an environmental disaster.

Population Vulnerability[1] in Suffolk City



Top-5 Census Tracts for Population Vulnerability[1]

			Within-Suffolk City Percentiles								
#	Census Tract	# of House-holds	Pop. Vul.	Comm. of Color	Elevated Health Risk	Low Income	# of People	# of Children	Unem. Risk	Age	Vehicle Access
1	**75602**	**2**	**100th**	0th	95th	100th	100th	100th	0th	77th	0th
2	**75601**	**437**	**95th**	100th	41st	86th	36th	32nd	77th	59th	86th
3	**65100**	**175**	**91st**	91st	5th	95th	14th	50th	95th	45th	100th
4	**65500**	**180**	**86th**	95th	9th	91st	0th	14th	100th	23rd	95th
5	**75802**	**5**	**82nd**	41st	100th	77th	82nd	91st	0th	50th	0th

Note: see the appendix for a data table for the Top 15 Census Tracts

1. Population Vulnerability should be interpreted as an average household's ability to safely respond to an environmental disaster and only considers households located in flood or hurricane zones
2. Census tracts at the 0th percentile (areas in white) do not have households in Flood or Hurricane Zones

Data table | Population Vulnerability & Hazard Risk

			Percentiles										Within-locality Household Counts							
#	Census Tract	# of Households	Overall	Population Vulnerability	Communities of Color	Elevated Health Risk	Low Income	# of People	# of Children	Unem-ployment Risk	Age	Lack of Vehicle Access	Hazard Risk	100 Year Coastal	100 Year Riverine FW	100 Year Riverine	500 Year Riverine	Hurr. Zone A	Hurr. Zone B	Hurr. Zone C	Hurr Zone D
1	75101	3,995	100th	73rd	86th	59th	59th	45th	64th	59th	5th	82nd	100th	0	0	7	130	189	0	2719	1087
2	75204	2,749	95th	77th	82nd	73rd	82nd	27th	45th	91st	18th	73rd	82nd	0	0	0	0	0	0	2	2747
3	75501	2,786	91st	64th	59th	18th	73rd	32nd	41st	82nd	27th	91st	86th	0	0	4	6	14	0	0	2772
4	75502	2,092	82nd	68th	77th	36th	50th	86th	82nd	64th	36th	41st	68th	0	0	43	2	0	0	1181	911
5	75601	437	82nd	95th	100th	41st	86th	36th	32nd	77th	59th	86th	41st	0	0	35	63	0	0	0	414
6	75201	2,510	68th	32nd	36th	77th	32nd	91st	59th	55th	68th	45th	91st	0	0	0	11	12	0	2348	150
7	75402	2,206	68th	50th	73rd	0th	55th	59th	68th	68th	9th	59th	73rd	0	0	4	0	41	424	0	1741
8	65100	175	68th	91st	91st	5th	95th	14th	50th	95th	45th	100th	32nd	0	0	4	0	0	0	0	175
9	65500	180	64th	86th	95th	9th	91st	0th	14th	100th	23rd	95th	36th	0	0	28	5	0	0	0	148
10	75102	2,585	55th	18th	27th	64th	27th	55th	36th	41st	73rd	50th	95th	0	0	3	2	119	0	2345	121
11	75203	1,960	55th	36th	64th	50th	23rd	68th	73rd	32nd	14th	0th	77th	0	0	1	0	0	0	1943	17
12	75202	668	50th	55th	68th	68th	18th	95th	86th	27th	32nd	55th	55th	0	0	0	0	0	0	666	2
13	75401	365	45th	59th	55th	27th	64th	77th	77th	73rd	41st	64th	45th	0	0	0	0	6	359	0	0
14	75602	2	41st	100th	0th	95th	100th	100th	100th	0th	77th	0th	0th	0	0	2	0	0	0	0	0
15	75802	5	36th	82nd	41st	100th	77th	82nd	91st	0th	50th	0th	14th	0	0	5	0	0	0	0	0

1. Note: These figures only account for census areas that have households in flood and/or hurricane zones

Data table | FEMA Funding[1]

Grantee	Year of Fiscal Year	Exclusive vs Shared	Subgrantee	Project Counties	Project Type(s)	Federal Funds Obligated
	2012	Shared	HAMPTON ROADS PLANNING DISTRICT COMMISSION	ISLE OF WIGHT; JAMES CITY; WILLIAMSBURG (CITY); VIRGINIA BEACH (CITY); SUFFOLK (CITY); PORTSMOUTH (CITY); POQUOSON (CITY); NORFOLK (CITY); NEWPORT NEWS (CITY); HAMPTON (CITY); FRANKLIN (CITY); SOUTHAMPTON; YORK; CHESAPEAKE (CITY)	91.1: Local Multihazard Mitigation Plan	$163,140
SUFFOLK CITY						
	2010	Shared	Hampton Roads Planning District Commission	ISLE OF WIGHT; NORFOLK CITY; PORTSMOUTH CITY; SUFFOLK CITY; VIRGINIA BEACH CITY	91.1: Local Multihazard Mitigation Plan	$92,801

1. Source: FEMA Hazard Mitigation Projects-V2 dataset from fema.gov

COVID-19 Unified Command/VEST Health Equity Working Group

MITIGATION PROJECTS ANALYSIS
SOUTHAMPTON COUNTY

NOVEMBER 2020

Topics

The analysis provides **Southampton County** with information to support planning and preparation of projects for the Building Resilient Infrastructure and Communities (BRIC) grant application with an equity focus.

- ❑ Introduction to Data-Driven Approach
- ❑ Hazard Risk
- ❑ Population Vulnerability
- ❑ Summary
- ❑ FEMA Funding and Past Projects
- ❑ Considerations for Next Steps

This analysis ***expands the scope of population vulnerability*** to provide a ***data-driven equity lens*** for disaster mitigation project design

Data-Driven Approach

The Health360 platform informs population vulnerability and enables a data-driven approach to operationalizing equity in mitigation projects.

Powered By Health360

230M+
U.S. Adults Scored

Data updated every
1 Month

Contains over
1,500+
variables on Social Determinants of Health and other metrics

150+
Advanced predictive algorithms

400+
Variables used in the mortality predictive algorithm

Provides 360° view of a person

Algorithms rebuilt every 2 years

40+
Clients served

What is hazard risk and how is it calculated?

Household Hazard risk reflects the number of households in each flood or hurricane zone, weighted by severity.

Hazard Risk

Number of households in each zone:

Flood zones
- 100 year coastal
- 100 year riverine flood way
- 100 year riverine
- 500 year riverine

Hurricane zones
- Segmented A, B, C, D

- Households that reside in the flood and hurricane zones are considered to be **at-risk for environmental disasters**
- Hazard Risk reflects **the number of households located in Flood and Hurricane Zones**
- Hazard Risk is not a measure of **infrastructure, elevation, or financial risks**, but is a measure of the number of at-risk households in an area, weighted by the severity of the risk, to **provide a people-focused risk metric**

Note: Severity of the risk per household is captured on an ordinal scale from 1 – least severe (Hurricane Zone D, 500 Year Riverine) to 4 – most severe (Hurricane Zone A, 100 Year Coastal)

Hazard Risk = (# of Households Analyzed in Particular Hurricane or Flood Zones) X (Specified Zone Risk Level (1 through 4 depending on risk severity))

Hazard Risk in Your Locality

The figures below indicate how your locality's hazard risk[1] compares to others in Virginia as well as how many households reside in each flood or hurricane zone.

Hazard Risk[1] Percentile

69th

Your locality has more households in more severe flood/hurricane zones than 69% of other Virginia localities

Hazard Risk[1] Rank

41st

Your locality's Hazard Risk score is ranked 41st out of 132 Virginia localities

Households in Flood Zones & Locality Rank

← Severity			
100 Year Coastal	100 Year Riverine Floodway	100 Year Riverine	500 Year Riverine
0	3	307	615
N/A out of 132 Localities	53rd out of 132 Localities	52nd out of 132 Localities	19th out of 132 Localities

Flood zones are geographic areas that FEMA has defined according to varying levels of flood risk

Households in Hurricane Zones & Locality Rank

← Severity			
Zone A	Zone B	Zone C	Zone D
0	0	0	0
N/A out of 132 Localities	N/A out of 132 Localities	N/A out of 132 Localities	N/A out of 132 Localities

Evacuation zones designated as A through D are in place across coastal Virginia

1. Hazard risk reflects the number of households located in Flood and Hurricane Zones, weighted by severity
2. Note that the total sum of households may be more than the households in your locality because some are located in both flood and hurricane zones

What is population vulnerability and how is it calculated?

The Population Vulnerability score provides a people-focused metric that can be combined with infrastructure, elevation, and financial metrics to support a holistic approach to mitigation planning.

Population Vulnerability

Prevalence of:

1. Communities of color
2. Elevated health risk
3. Low income
4. # of people in household
5. # of children in household
6. Unemployment risk
7. Age (older adults)
8. Lack of vehicle access

- Population Vulnerability **expands upon the 2018 Virginia Hazard Mitigation plan definition** of population vulnerability (density and percentage of total population)
- Population Vulnerability **only considers localities with households in flood or hurricane zones (132 localities)**
- Population Vulnerability **identifies the locality and census blocks/Census Blocks** with the most vulnerable individuals/households on average
- Population Vulnerability should be interpreted as a **household's ability to safely respond** to an environmental disaster

Population Vulnerability in Your Locality

The figures below indicate how your locality's population vulnerability[1] score and composite attributes compare to other localities in Virginia.

Population Vulnerability[1] Percentile

92nd

On average, a household in a flood or hurricane zone in your locality is more vulnerable than a household in 92% of other Virginia localities

Population Vulnerability[1] Rank

11th

Your locality's Population Vulnerability score is ranked 11th out of 132 Virginia localities

How SOUTHAMPTON COUNTY Compares to Other Localities Across the Eight Vulnerability Attributes

Low Income	Elevated Health Risk	Age	Communities of Color
73rd percentile	20th percentile	50th percentile	92nd percentile

# of Children in Household	# of People in Household	Unemployment Risk	Lack of Vehicle Access
94th percentile	82nd percentile	21st percentile	86th percentile

1. Population Vulnerability should be interpreted as a household's ability to safely respond to an environmental disaster and only considers households located in flood or hurricane zones

Population Vulnerability & Hazard Risk Summary

Understanding population vulnerability and hazard risk in your locality can help support future mitigation projects.

Population Vulnerability[1] Percentile

92nd

On average, a household in a flood or hurricane zone in your locality is more vulnerable than a household in 92% of other Virginia localities

Hazard Risk[2] Percentile

69th

Your locality has more households in more severe flood/hurricane zones than 69% of other Virginia localities

Population Vulnerability[1] Rank

11th

Your locality's Population Vulnerability score is ranked 11th out of 132 Virginia localities

Hazard Risk[2] Rank

41st

Your locality's Hazard Risk score is ranked 41st out of 132 Virginia localities

1. Population Vulnerability should be interpreted as a household's ability to safely respond to an environmental disaster and only considers households located in flood or hurricane zones
2. Hazard risk reflects the number of households located in Flood and Hurricane Zones, weighted by severity

Review of FEMA Funding & Past Mitigation Projects

Review of Mitigation Projects In Your Locality

The figures below provide information regarding mitigation projects[1] in your locality from 1990-2019 that may be helpful to consider in planning potential future mitigation projects.

Total Exclusive Project Funding[1]

$962,951

This is the total amount of federal funding alloted to mitigation projects solely owned by your locality from 1990-2019

Total Shared Project Funding[1]

$282,974

This is the total amount of federal funding allotted to mitigation projects owned by your locality and at least 1 other from 1990-2019

Exclusive Projects

10

Average Project Size

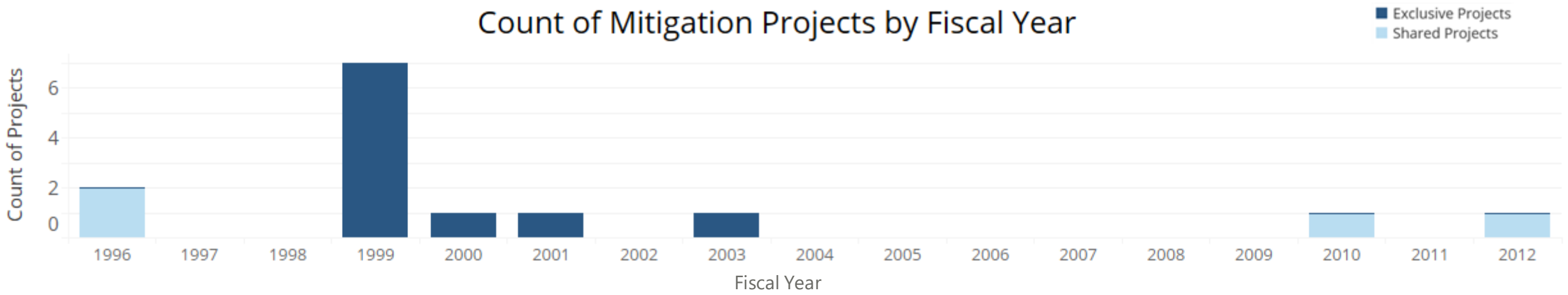
$96K

Shared Projects

4

Average Counties Per Project

5.0

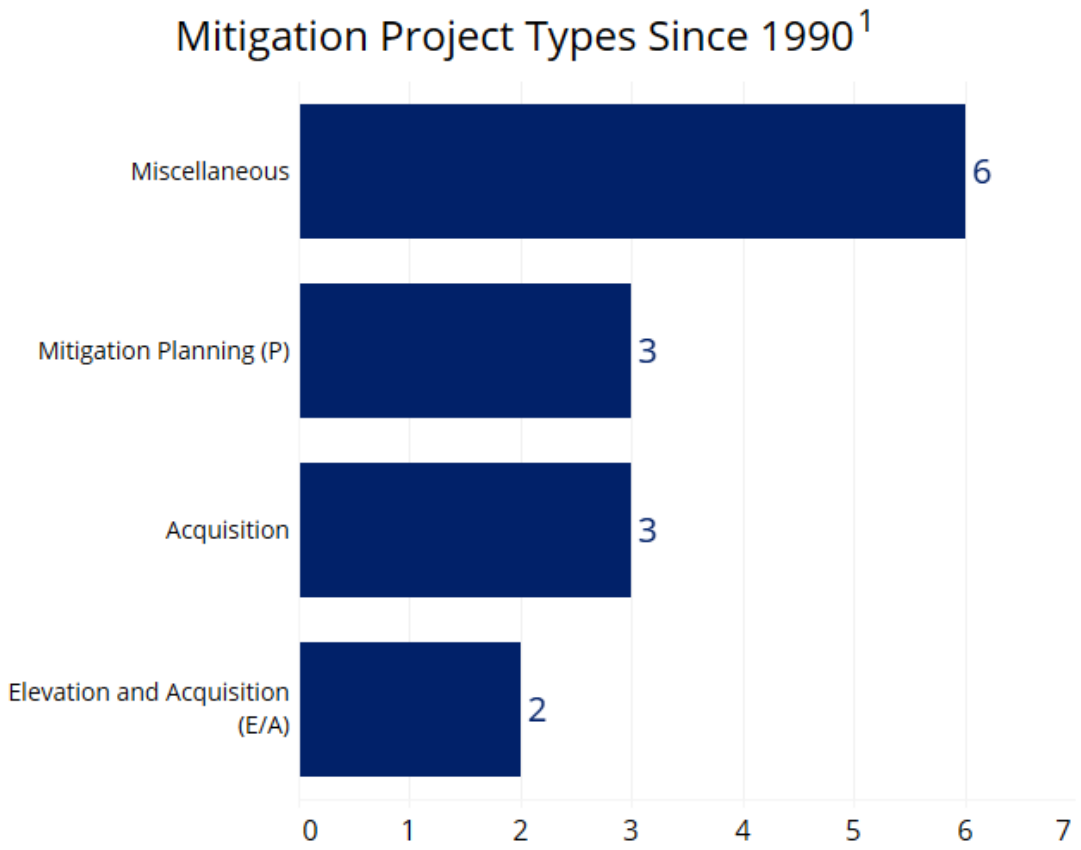


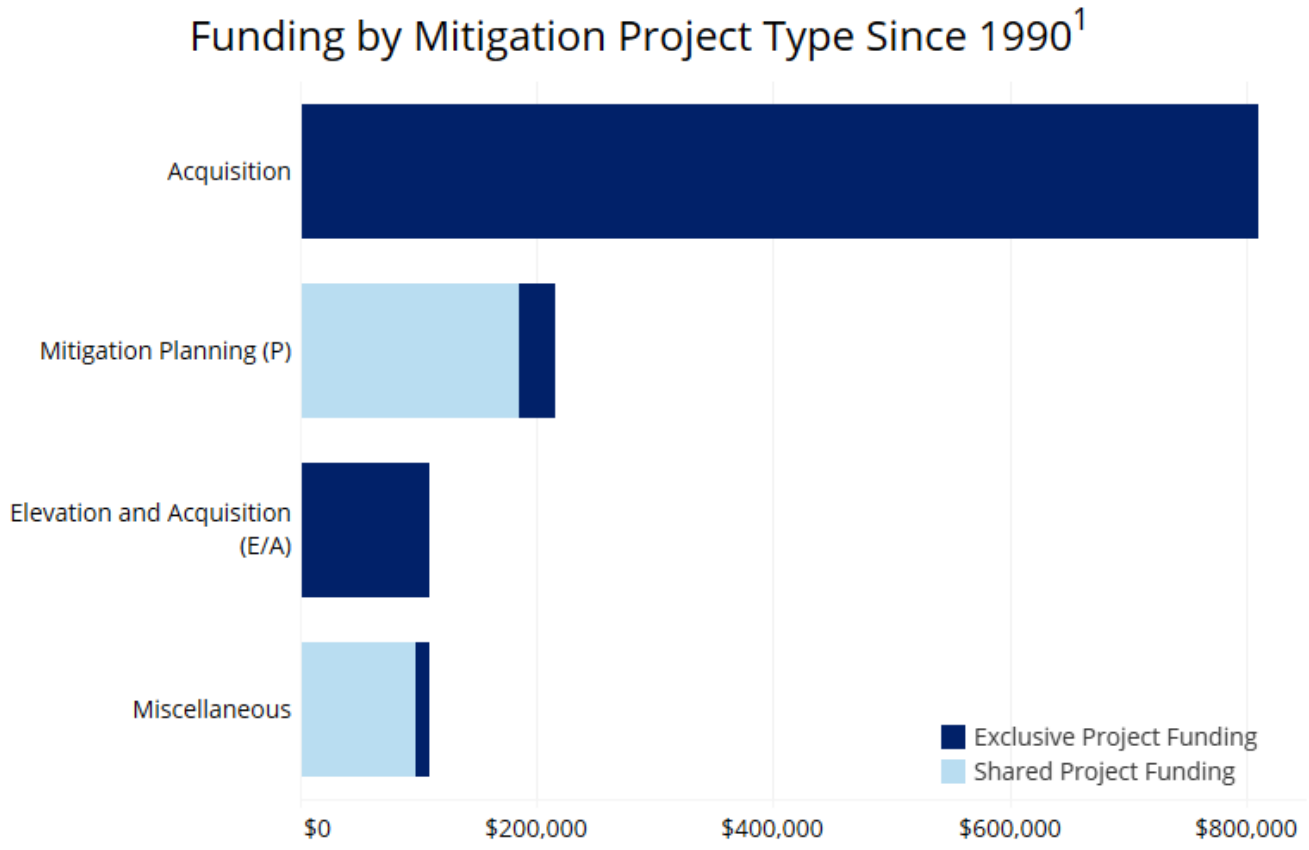
1. Source: FEMA Hazard Mitigation Projects-V2 dataset from fema.gov

Note: see the appendix for a complete data table of these mitigation projects

Past Mitigation Projects – Top Project Types

The figures below provide information regarding mitigation projects[1] in your locality from 1990-2019 that may be helpful to consider in planning potential future mitigation projects.





1. Source: FEMA Hazard Mitigation Projects-V2 dataset from fema.gov

Note: see the appendix for a complete data table of these mitigation projects

COVID-19 Impacts

COVID-19 In Your Locality

Since the beginning of the COVID-19 Pandemic, Southampton County has experienced the following:

Cases[1]

Total	Per 100k
905 **39th** out of 133 localities[2]	**5,045** **7th** out of 133 localities

Hospitalizations[1]

Total	Per 100k
28 **70th** out of 133 localities	**156** **42nd** out of 133 localities

Deaths[1]

Total	Per 100k
34 **23rd** out of 133 localities	**190** **5th** out of 133 localities

1. COVID-19 case, hospitalization, and death figures are sourced from the Virginia Department of Health as of **10/21/2020**
2. COVID-19 Impact rankings are for all 133 Virginia localities, rather than the 132 included in the BRIC analysis for having at least one household in a flood or hurricane zone

Considerations for Next Steps

Considerations for Next Steps

When evaluating future mitigation project opportunities, the population vulnerability and hazard risk metrics can supplement existing measures to design mitigation projects with an equity lens.

- Consider **population vulnerability** and it's various components to support decisions on mitigation projects
- Consider **supplementing these people-focused metrics** with existing infrastructure, elevation, and financial analysis for a holistic mitigation planning approach that includes equity considerations
- Consider **past project types** and **prior funding** in the overall mitigation strategy

Appendix

What is population vulnerability and how is it calculated? *continued*

The vulnerability score for each Virginia household reflects an estimate of the household's ability to safely respond in the event of an environmental disaster.

Population Vulnerability

Attribute[1]	Weighting[2]	Description (in a household)
Low Income	18%	Number of adults with income less than $30,000
Elevated Health Risk	17%	Number of adults with one or more serious health conditions
Age (Older Adults)	15%	Number of adults who are age 65 and older
Communities of Color	13%	Number of Black or African American or Hispanic or Latino adults
# of Children in Household	12%	Number of children
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Unemployment Risk	8%	Number of adults at high risk of unemployment
Lack of Vehicle Access	6%	Does the household lack access to a motor vehicle?

1. Two attributes - English as a Primary Language and Prevalence of Mobile Housing - were dropped from consideration based on the 8/20/2020 BRIC Working Group Session
2. Attribute contributions to Population Vulnerability were weighted as a result of the BRIC Working Group Session on 8/20/2020

Data table | FEMA Funding[1]

Grantee	Year of Fiscal Year	Exclusive vs Shared	Subgrantee	Project Counties	Project Type(s)	Federal Funds Obligated
SOUTHAMPTON COUNTY	2012	Shared	HAMPTON ROADS PLAN..	ISLE OF WIGHT; JAMES CITY; WILLIAMSBURG (CITY); VIRGINIA BEA..	91.1: Local Multihazard Mitigation Plan	$163,140
	2010	Shared	Hampton Roads Planni..	FRANKLIN CITY; SOUTHAMPTON	91.1: Local Multihazard Mitigation Plan	$22,500
	2003	Exclusive	Southampton (County)	SOUTHAMPTON	91.1: Local Multihazard Mitigation Plan	$30,555
	2001	Exclusive	Southampton (County)	SOUTHAMPTON	800.1: Miscellaneous	$4,619
	2000	Exclusive	Southampton (County)	SOUTHAMPTON	800.1: Miscellaneous	$3,054
	1999	Exclusive	Southampton (County)	SOUTHAMPTON	200.1: Acquisition of Private Real Property (Structures and Land) ..	$451,718
					200.1: Acquisition of Private Real Property (Structures and Land) ..	$109,883
					200.3: Acquisition of Public Real Property (Structures and Land) ..	$358,803
					800.1: Miscellaneous	$4,319
	1996	Shared	SOUTHAMPTON COUNTY	ISLE OF WIGHT	800.1: Miscellaneous	$97,334

1. Source: FEMA Hazard Mitigation Projects-V2 dataset from fema.gov

COVID-19 Unified Command/VEST Health Equity Working Group

MITIGATION PROJECTS ANALYSIS
FRANKLIN CITY

NOVEMBER 2020

Topics

The analysis provides **Franklin City** with information to support planning and preparation of projects for the Building Resilient Infrastructure and Communities (BRIC) grant application with an equity focus.

- ❑ Introduction to Data-Driven Approach
- ❑ Hazard Risk
- ❑ Population Vulnerability
- ❑ Summary
- ❑ FEMA Funding and Past Projects
- ❑ Considerations for Next Steps

This analysis ***expands the scope of population vulnerability*** to provide a ***data-driven equity lens*** for disaster mitigation project design

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The Health360 platform informs population vulnerability and enables a data-driven approach to operationalizing equity in mitigation projects.

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400+
Variables used in the mortality predictive algorithm

Provides 360° view of a person

Algorithms rebuilt every 2 years

40+
Clients served

What is hazard risk and how is it calculated?

Household Hazard risk reflects the number of households in each flood or hurricane zone, weighted by severity.

Hazard Risk

Number of households in each zone:

Flood zones
- 100 year coastal
- 100 year riverine flood way
- 100 year riverine
- 500 year riverine

Hurricane zones
- Segmented A, B, C, D

- Households that reside in the flood and hurricane zones are considered to be **at-risk for environmental disasters**
- Hazard Risk reflects **the number of households located in Flood and Hurricane Zones**
- Hazard Risk is not a measure of **infrastructure, elevation, or financial risks**, but is a measure of the number of at-risk households in an area, weighted by the severity of the risk, to **provide a people-focused risk metric**

Note: Severity of the risk per household is captured on an ordinal scale from 1 – least severe (Hurricane Zone D, 500 Year Riverine) to 4 – most severe (Hurricane Zone A, 100 Year Coastal)

Hazard Risk = (# of Households Analyzed in Particular Hurricane or Flood Zones) X (Specified Zone Risk Level (1 through 4 depending on risk severity))

Hazard Risk in Your Locality

The figures below indicate how your locality's hazard risk[1] compares to others in Virginia as well as how many households reside in each flood or hurricane zone.

Hazard Risk[1] Percentile

38th

Your locality has more households in more severe flood/hurricane zones than 38% of other Virginia localities

Hazard Risk[1] Rank

82nd

Your locality's Hazard Risk score is ranked 82nd out of 132 Virginia localities

Households in Flood Zones & Locality Rank

← Severity			
100 Year Coastal	100 Year Riverine Floodway	100 Year Riverine	500 Year Riverine
0	0	100	123
N/A out of 132 Localities	N/A out of 132 Localities	84th out of 132 Localities	44th out of 132 Localities

Flood zones are geographic areas that FEMA has defined according to varying levels of flood risk

Households in Hurricane Zones & Locality Rank

← Severity			
Zone A	Zone B	Zone C	Zone D
0	0	0	0
N/A out of 132 Localities	N/A out of 132 Localities	N/A out of 132 Localities	N/A out of 132 Localities

Evacuation zones designated as A through D are in place across coastal Virginia

1. Hazard risk reflects the number of households located in Flood and Hurricane Zones, weighted by severity
2. Note that the total sum of households may be more than the households in your locality because some are located in both flood and hurricane zones

What is population vulnerability and how is it calculated?

The Population Vulnerability score provides a people-focused metric that can be combined with infrastructure, elevation, and financial metrics to support a holistic approach to mitigation planning.

Population Vulnerability

Prevalence of:

1. Communities of color
2. Elevated health risk
3. Low income
4. # of people in household
5. # of children in household
6. Unemployment risk
7. Age (older adults)
8. Lack of vehicle access

- Population Vulnerability **expands upon the 2018 Virginia Hazard Mitigation plan definition** of population vulnerability (density and percentage of total population)
- Population Vulnerability **only considers localities with households in flood or hurricane zones (132 localities)**
- Population Vulnerability **identifies the locality and census blocks/Census Blocks** with the most vulnerable individuals/households on average
- Population Vulnerability should be interpreted as a **household's ability to safely respond** to an environmental disaster

Population Vulnerability in Your Locality

The figures below indicate how your locality's population vulnerability[1] score and composite attributes compare to other localities in Virginia.

Population Vulnerability[1] Percentile

86th

On average, a household in a flood or hurricane zone in your locality is more vulnerable than a household in 86% of other Virginia localities

Population Vulnerability[1] Rank

20th

Your locality's Population Vulnerability score is ranked 20th out of 132 Virginia localities

How FRANKLIN CITY Compares to Other Localities Across the Eight Vulnerability Attributes

Low Income	Elevated Health Risk	Age	Communities of Color
98th percentile	**2nd** percentile	**2nd** percentile	**97th** percentile

# of Children in Household	# of People in Household	Unemployment Risk	Lack of Vehicle Access
76th percentile	**32nd** percentile	**95th** percentile	**100th** percentile

1. Population Vulnerability should be interpreted as a household's ability to safely respond to an environmental disaster and only considers households located in flood or hurricane zones

Population Vulnerability & Hazard Risk Summary

Understanding population vulnerability and hazard risk in your locality can help support future mitigation projects.

Population Vulnerability[1] Percentile

86th

On average, a household in a flood or hurricane zone in your locality is more vulnerable than a household in 86% of other Virginia localities

Hazard Risk[2] Percentile

38th

Your locality has more households in more severe flood/hurricane zones than 38% of other Virginia localities

Population Vulnerability[1] Rank

20th

Your locality's Population Vulnerability score is ranked 20th out of 132 Virginia localities

Hazard Risk[2] Rank

82nd

Your locality's Hazard Risk score is ranked 82nd out of 132 Virginia localities

1. Population Vulnerability should be interpreted as a household's ability to safely respond to an environmental disaster and only considers households located in flood or hurricane zones
2. Hazard risk reflects the number of households located in Flood and Hurricane Zones, weighted by severity

Review of FEMA Funding & Past Mitigation Projects

Review of Mitigation Projects In Your Locality

The figures below provide information regarding mitigation projects[1] in your locality from 1990-2019 that may be helpful to consider in planning potential future mitigation projects.

Total Exclusive Project Funding[1]

$0

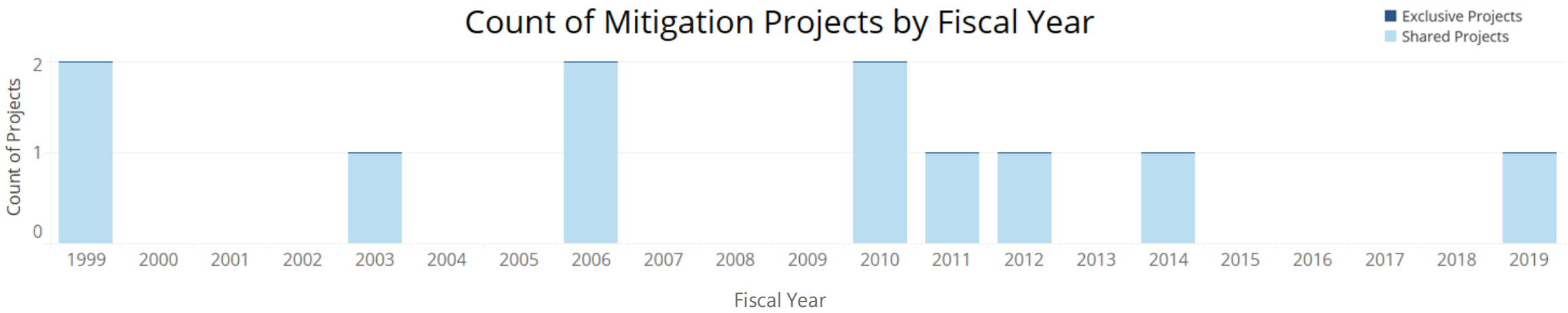
This is the total amount of federal funding alloted to mitigation projects solely owned by your locality from 1990-2019

Total Shared Project Funding[1]

$877,804

This is the total amount of federal funding allotted to mitigation projects owned by your locality and at least 1 other from 1990-2019

Exclusive Projects	Average Exclusive Project Size	Shared Projects	Average Counties Per Shared Project
0	$0	11	3.8

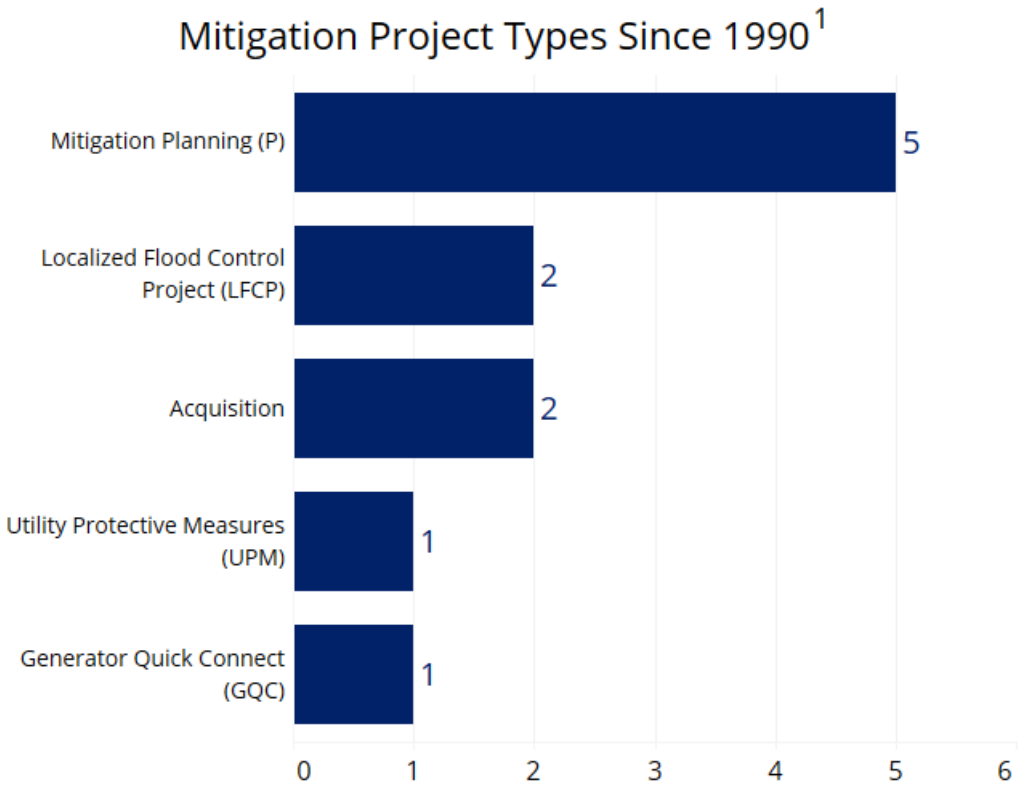


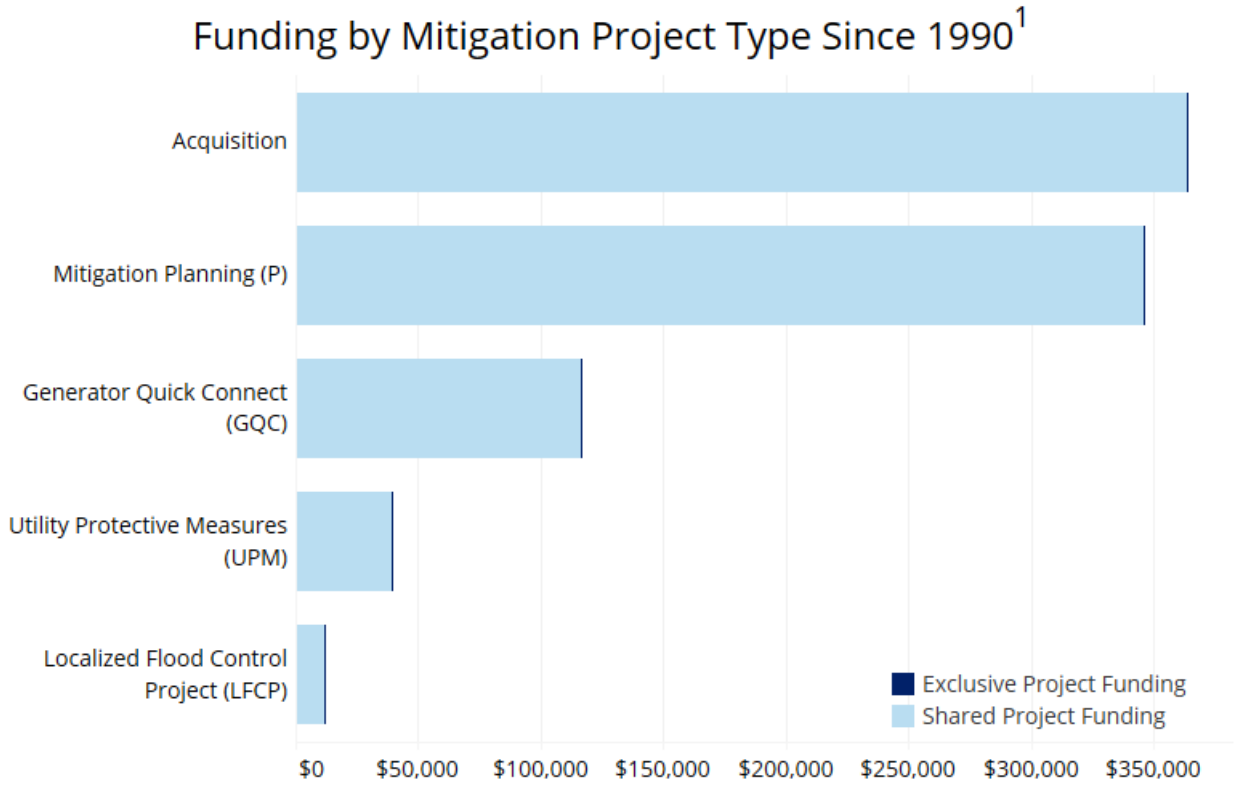
1. Source: FEMA Hazard Mitigation Projects-V2 dataset from fema.gov

Note: see the appendix for a complete data table of these mitigation projects

Past Mitigation Projects – Top Project Types

The figures below provide information regarding mitigation projects[1] in your locality from 1990-2019 that may be helpful to consider in planning potential future mitigation projects.





1. Source: FEMA Hazard Mitigation Projects-V2 dataset from fema.gov

Note: see the appendix for a complete data table of these mitigation projects

COVID-19 Impacts

COVID-19 In Your Locality

Since the beginning of the COVID-19 Pandemic, Franklin City has experienced the following:

Cases[1]

Total	Per 100k
498	**6,065**
66th out of 133 localities[2]	**3rd** out of 133 localities

Hospitalizations[1]

Total	Per 100k
25	**304**
79th out of 133 localities	**11th** out of 133 localities

Deaths[1]

Total	Per 100k
13	**158**
55th out of 133 localities	**6th** out of 133 localities

1. COVID-19 case, hospitalization, and death figures are sourced from the Virginia Department of Health as of **10/28/2020**
2. COVID-19 Impact rankings are for all 133 Virginia localities, rather than the 132 included in the BRIC analysis for having at least one household in a flood or hurricane zone

Considerations for Next Steps

Considerations for Next Steps

When evaluating future mitigation project opportunities, the population vulnerability and hazard risk metrics can supplement existing measures to design mitigation projects with an equity lens.

- Consider **population vulnerability** and it's various components to support decisions on mitigation projects
- Consider **supplementing these people-focused metrics** with existing infrastructure, elevation, and financial analysis for a holistic mitigation planning approach that includes equity considerations
- Consider **past project types** and **prior funding** in the overall mitigation strategy

Appendix

What is population vulnerability and how is it calculated? *continued*

The vulnerability score for each Virginia household reflects an estimate of the household's ability to safely respond in the event of an environmental disaster.

Population Vulnerability

Attribute[1]	Weighting[2]	Description (in a household)
Low Income	18%	Number of adults with income less than $30,000
Elevated Health Risk	17%	Number of adults with one or more serious health conditions
Age (Older Adults)	15%	Number of adults who are age 65 and older
Communities of Color	13%	Number of Black or African American or Hispanic or Latino adults
# of Children in Household	12%	Number of children
# of People in Household	10%	Number of adults and children
Unemployment Risk	8%	Number of adults at high risk of unemployment
Lack of Vehicle Access	6%	Does the household lack access to a motor vehicle?

1. Two attributes - English as a Primary Language and Prevalence of Mobile Housing - were dropped from consideration based on the 8/20/2020 BRIC Working Group Session
2. Attribute contributions to Population Vulnerability were weighted as a result of the BRIC Working Group Session on 8/20/2020

Data table | FEMA Funding[1]

Grantee	Year of Fiscal Year	Exclusive vs Shared	Subgrantee	Project Counties	Project Type(s)	Federal Funds Obligated
FRANKLIN CITY	2019	Shared	Rocky Mount	FRANKLIN	601.1: Generators	$116,250
	2014	Shared	West Piedmont Planning District Commission	DANVILLE CITY; FRANKLIN; HENRY; PATRICK; PITTSYLVANIA	91.1: Local Multihazard Mitigation Plan	$75,000
	2012	Shared	HAMPTON ROADS PLANNING DISTRICT COMMI..	ISLE OF WIGHT; JAMES CITY; WILLIAMSBURG (CITY); VIRGINIA BEACH (CITY); SUFFOLK (CITY); PORTSMOUTH (CITY); POQUOSON (CITY); NORFO..	91.1: Local Multihazard Mitigation Plan	$163,140
	2011	Shared	Franklin	FRANKLIN (CITY)	400.1: Utility Protective Measures (Electric, Gas, etc.)	$39,528
	2010	Shared	Hampton Roads Planning District Commission	FRANKLIN CITY; SOUTHAMPTON	91.1: Local Multihazard Mitigation Plan	$22,500
			West Piedmont Planning District Commission	DANVILLE CITY; FRANKLIN; HENRY; PATRICK; PITTSYLVANIA	91.1: Local Multihazard Mitigation Plan	$56,250
	2006	Shared	Franklin	FRANKLIN (CITY)	106.1: Other Non Construction (Regular Project Only); 404.1: Localized Flood Control System to Prote..	$12,052
	2003	Shared	Franklin	FRANKLIN	91.1: Local Multihazard Mitigation Plan	$29,301
	1999	Shared	Franklin	FRANKLIN	200.1: Acquisition of Private Real Property (Structures and Land) - Riverine	$254,441
				FRANKLIN (CITY)	200.1: Acquisition of Private Real Property (Structures and Land) - Riverine	$109,342

1. Source: FEMA Hazard Mitigation Projects-V2 dataset from fema.gov

COVID-19 Unified Command/VEST Health Equity Working Group

MITIGATION PROJECTS ANALYSIS
EMPORIA CITY

NOVEMBER 2020

Topics

The analysis provides **Emporia City** with information to support planning and preparation of projects for the Building Resilient Infrastructure and Communities (BRIC) grant application with an equity focus.

- ❑ Introduction to Data-Driven Approach
- ❑ Hazard Risk
- ❑ Population Vulnerability
- ❑ Summary
- ❑ FEMA Funding and Past Projects
- ❑ Considerations for Next Steps

This analysis ***expands the scope of population vulnerability*** to provide a ***data-driven equity lens*** for disaster mitigation project design

Data-Driven Approach

The Health360 platform informs population vulnerability and enables a data-driven approach to operationalizing equity in mitigation projects.

Powered By Health360

230M+
U.S. Adults Scored

Data updated every
1 Month

Contains over
1,500+
variables on Social Determinants of Health and other metrics

150+
Advanced predictive algorithms

400+
Variables used in the mortality predictive algorithm

Provides 360° view of a person

Algorithms rebuilt every 2 years

40+
Clients served

What is hazard risk and how is it calculated?

Household Hazard risk reflects the number of households in each flood or hurricane zone, weighted by severity.

Hazard Risk

Number of households in each zone:

Flood zones
- 100 year coastal
- 100 year riverine flood way
- 100 year riverine
- 500 year riverine

Hurricane zones
- Segmented A, B, C, D

- Households that reside in the flood and hurricane zones are considered to be **at-risk for environmental disasters**
- Hazard Risk reflects **the number of households located in Flood and Hurricane Zones**
- Hazard Risk is not a measure of **infrastructure, elevation, or financial risks**, but is a measure of the number of at-risk households in an area, weighted by the severity of the risk, to **provide a people-focused risk metric**

Note: Severity of the risk per household is captured on an ordinal scale from 1 – least severe (Hurricane Zone D, 500 Year Riverine) to 4 – most severe (Hurricane Zone A, 100 Year Coastal)

Hazard Risk = (# of Households Analyzed in Particular Hurricane or Flood Zones) X (Specified Zone Risk Level (1 through 4 depending on risk severity))

Hazard Risk in Your Locality

The figures below indicate how your locality's hazard risk[1] compares to others in Virginia as well as how many households reside in each flood or hurricane zone.

Hazard Risk[1] Percentile

40th

Your locality has more households in more severe flood/hurricane zones than 40% of other Virginia localities

Hazard Risk[1] Rank

79th

Your locality's Hazard Risk score is ranked 79th out of 132 Virginia localities

Households in Flood Zones & Locality Rank

← Severity			
100 Year Coastal	100 Year Riverine Floodway	100 Year Riverine	500 Year Riverine
0	0	111	121
N/A out of 132 Localities	N/A out of 132 Localities	82nd out of 132 Localities	45th out of 132 Localities

Flood zones are geographic areas that FEMA has defined according to varying levels of flood risk

Households in Hurricane Zones & Locality Rank

← Severity			
Zone A	Zone B	Zone C	Zone D
0	0	0	0
N/A out of 132 Localities	N/A out of 132 Localities	N/A out of 132 Localities	N/A out of 132 Localities

Evacuation zones designated as A through D are in place across coastal Virginia

1. Hazard risk reflects the number of households located in Flood and Hurricane Zones, weighted by severity
2. Note that the total sum of households may be more than the households in your locality because some are located in both flood and hurricane zones

What is population vulnerability and how is it calculated?

The Population Vulnerability score provides a people-focused metric that can be combined with infrastructure, elevation, and financial metrics to support a holistic approach to mitigation planning.

Population Vulnerability

Prevalence of:

1. Communities of color
2. Elevated health risk
3. Low income
4. # of people in household
5. # of children in household
6. Unemployment risk
7. Age (older adults)
8. Lack of vehicle access

- Population Vulnerability **expands upon the 2018 Virginia Hazard Mitigation plan definition** of population vulnerability (density and percentage of total population)
- Population Vulnerability **only considers localities with households in flood or hurricane zones (132 localities)**
- Population Vulnerability **identifies the locality and census blocks/Census Blocks** with the most vulnerable individuals/households on average
- Population Vulnerability should be interpreted as a **household's ability to safely respond** to an environmental disaster

Population Vulnerability in Your Locality

The figures below indicate how your locality's population vulnerability[1] score and composite attributes compare to other localities in Virginia.

Population Vulnerability[1] Percentile

95th

On average, a household in a flood or hurricane zone in your locality is more vulnerable than a household in 95% of other Virginia localities

Population Vulnerability[1] Rank

8th

Your locality's Population Vulnerability score is ranked 8th out of 132 Virginia localities

How EMPORIA CITY Compares to Other Localities Across the Eight Vulnerability Attributes

Low Income	Elevated Health Risk	Age	Communities of Color
97th percentile	**8th** percentile	**12th** percentile	**98th** percentile

# of Children in Household	# of People in Household	Unemployment Risk	Lack of Vehicle Access
80th percentile	**42nd** percentile	**98th** percentile	**92nd** percentile

1. Population Vulnerability should be interpreted as a household's ability to safely respond to an environmental disaster and only considers households located in flood or hurricane zones

Population Vulnerability & Hazard Risk Summary

Understanding population vulnerability and hazard risk in your locality can help support future mitigation projects.

Population Vulnerability[1] Percentile

95th

On average, a household in a flood or hurricane zone in your locality is more vulnerable than a household in 95% of other Virginia localities

Hazard Risk[2] Percentile

40th

Your locality has more households in more severe flood/hurricane zones than 40% of other Virginia localities

Population Vulnerability[1] Rank

8th

Your locality's Population Vulnerability score is ranked 8th out of 132 Virginia localities

Hazard Risk[2] Rank

79th

Your locality's Hazard Risk score is ranked 79th out of 132 Virginia localities

1. Population Vulnerability should be interpreted as a household's ability to safely respond to an environmental disaster and only considers households located in flood or hurricane zones
2. Hazard risk reflects the number of households located in Flood and Hurricane Zones, weighted by severity

Review of FEMA Funding & Past Mitigation Projects

Review of Mitigation Projects In Your Locality

The figures below provide information regarding mitigation projects[1] in your locality from 1990-2019 that may be helpful to consider in planning potential future mitigation projects.

Total Exclusive Project Funding[1]

$588,307

This is the total amount of federal funding alloted to mitigation projects solely owned by your locality from 1990-2019

Total Shared Project Funding[1]

$442,500

This is the total amount of federal funding allotted to mitigation projects owned by your locality and at least 1 other from 1990-2019

Exclusive Projects

2

Average Project Size

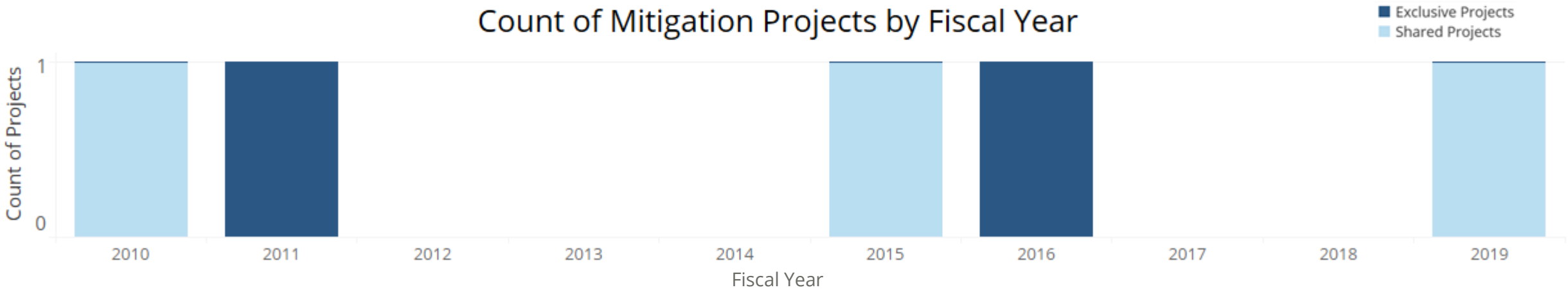
$294K

Shared Projects

3

Average Counties Per Project

17.0

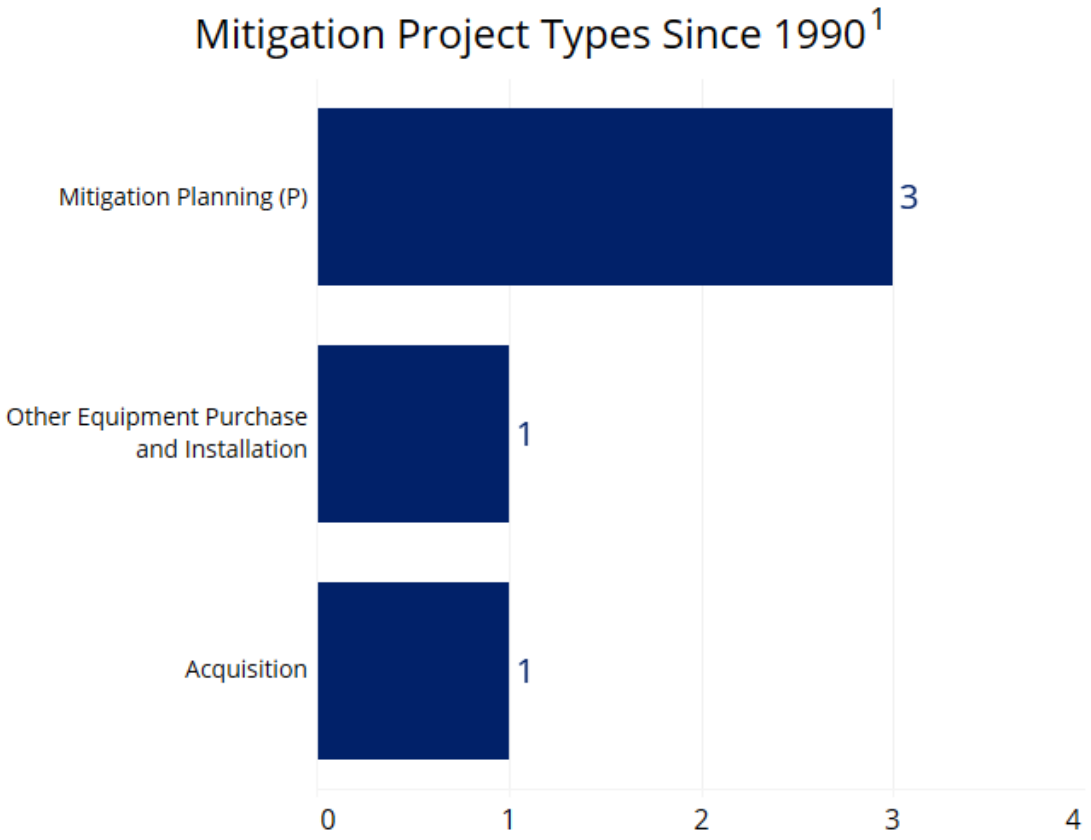


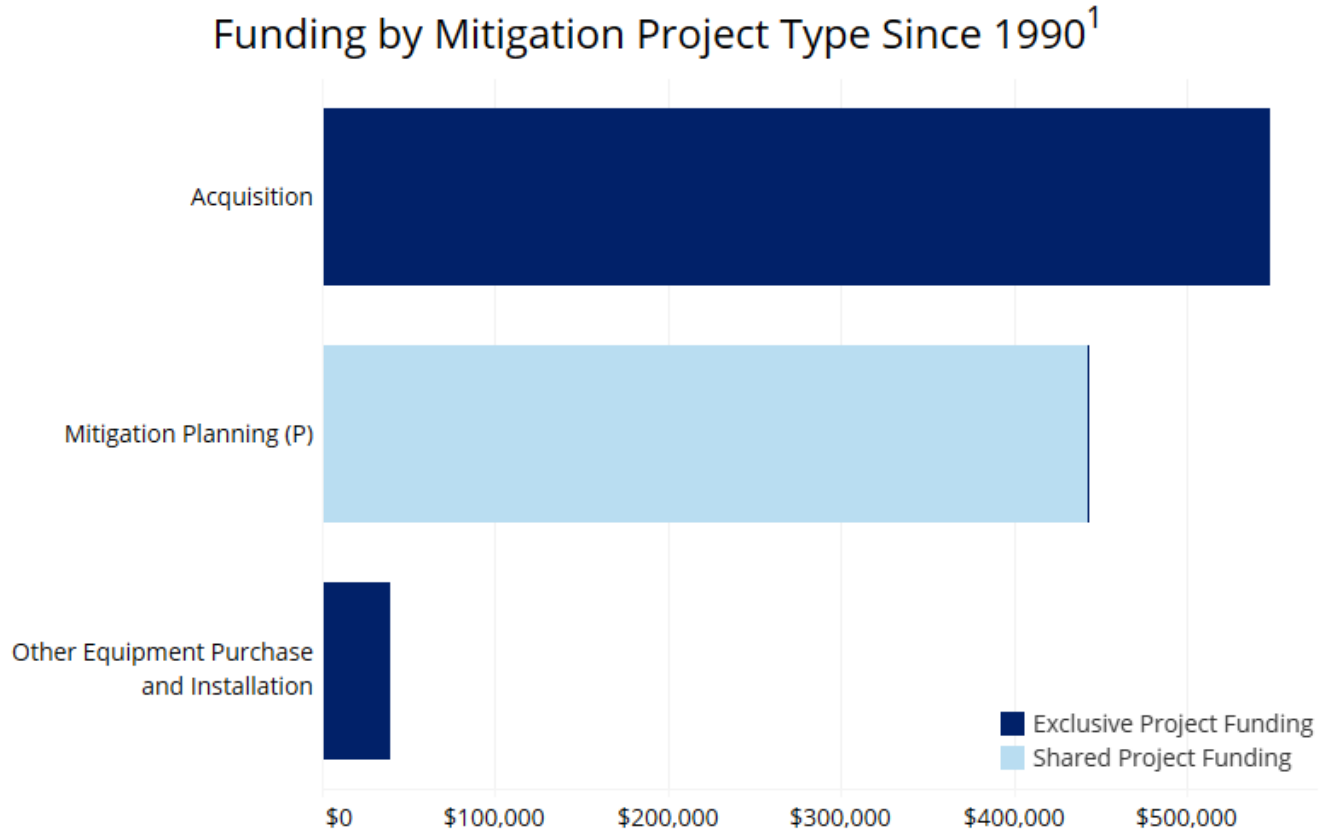
1. Source: FEMA Hazard Mitigation Projects-V2 dataset from fema.gov

Note: see the appendix for a complete data table of these mitigation projects

Past Mitigation Projects – Top Project Types

From 1990-2019, the top projects included Acquisition, Equipment Purchase, and Mitigation Planning. The project types that received the most funding were Acquisition and Mitigation Planning.





1. Source: FEMA Hazard Mitigation Projects-V2 dataset from fema.gov

Note: see the appendix for a complete data table of these mitigation projects

COVID-19 Impacts

COVID-19 In Your Locality

Since the beginning of the COVID-19 Pandemic, Emporia City has experienced the following:

Cases[1]

Total	Per 100k
302	**5,612**
96th out of 133 localities[2]	**5th** out of 133 localities

Hospitalizations[1]

Total	Per 100k
36	**669**
63rd out of 133 localities	**1st** out of 133 localities

Deaths[1]

Total	Per 100k
28	**520**
31st out of 133 localities	**1st** out of 133 localities

1. COVID-19 case, hospitalization, and death figures are sourced from the Virginia Department of Health as of **11/4/2020**
2. COVID-19 Impact rankings are for all 133 Virginia localities, rather than the 132 included in the BRIC analysis for having at least one household in a flood or hurricane zone

Considerations for Next Steps

Considerations for Next Steps

When evaluating future mitigation project opportunities, the population vulnerability and hazard risk metrics can supplement existing measures to design mitigation projects with an equity lens.

- Consider **population vulnerability** and it's various components to support decisions on mitigation projects
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Appendix

What is population vulnerability and how is it calculated? *continued*

The vulnerability score for each Virginia household reflects an estimate of the household's ability to safely respond in the event of an environmental disaster.

Population Vulnerability

Attribute[1]	Weighting[2]	Description (in a household)
Low Income	18%	Number of adults with income less than $30,000
Elevated Health Risk	17%	Number of adults with one or more serious health conditions
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Communities of Color	13%	Number of Black or African American or Hispanic or Latino adults
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# of People in Household	10%	Number of adults and children
Unemployment Risk	8%	Number of adults at high risk of unemployment
Lack of Vehicle Access	6%	Does the household lack access to a motor vehicle?

1. Two attributes - English as a Primary Language and Prevalence of Mobile Housing - were dropped from consideration based on the 8/20/2020 BRIC Working Group Session
2. Attribute contributions to Population Vulnerability were weighted as a result of the BRIC Working Group Session on 8/20/2020

Data table | FEMA Funding[1]

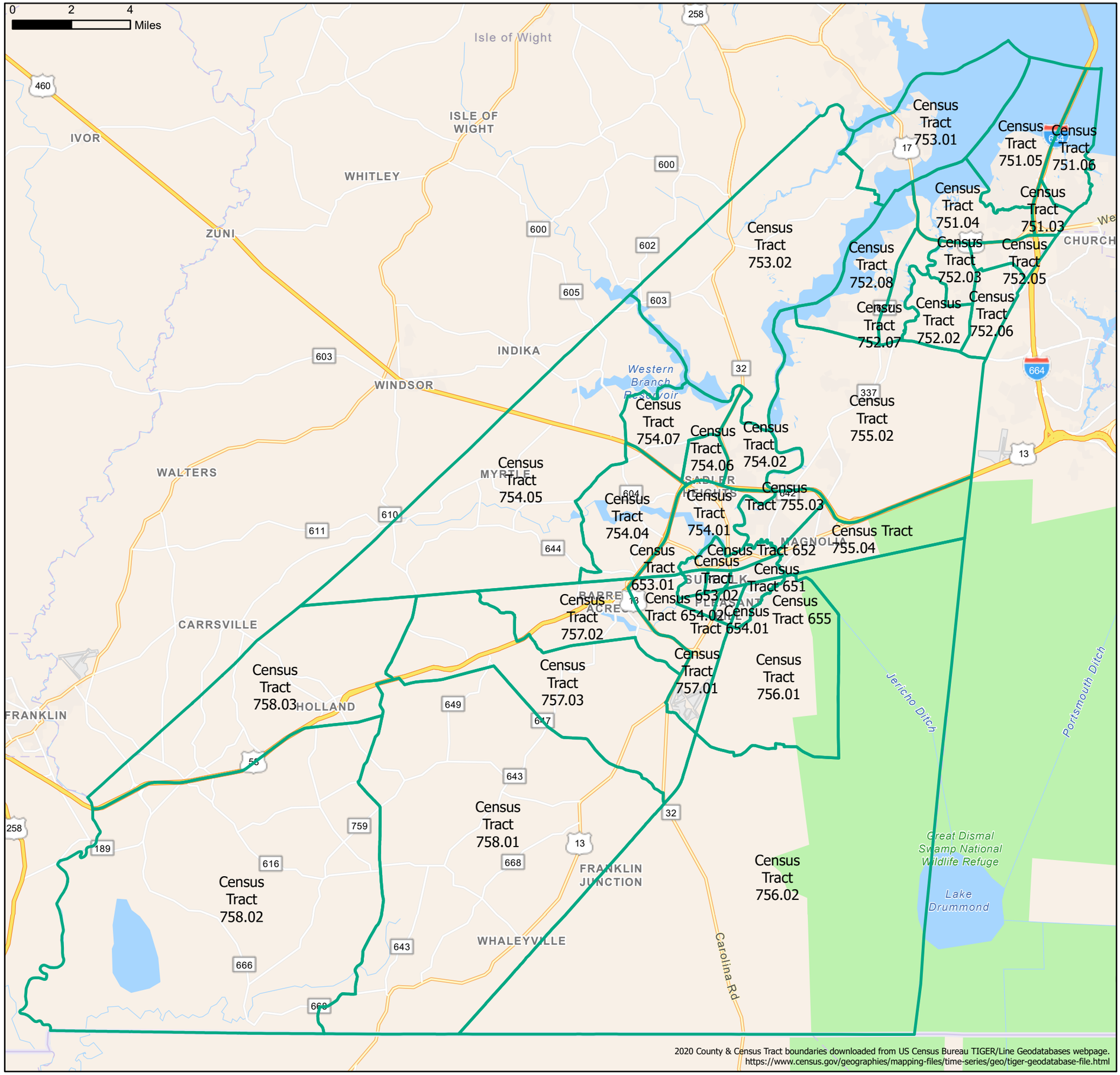
Grantee	Year of Fiscal Year	Exclusive vs Shared	Subgrantee	Project Counties	Project Type(s)	Federal Funds Obligated
EMPORIA CITY	2019	Shared	RICHMOND REGIONAL PLANNING DIST COMMISSION	PETERSBURG (CITY); EMPORIA (CITY); COLONIAL HEIGHTS (CITY; CHARLES CITY; CHESTERFIELD; DINWIDDIE; GOOCHLAND; GREENSVILLE; HANOVER; HENRICO; NEW KENT; POWHATAN; PRI..	91.5: Local Multijurisdictional Multihazard Mitigation Plan - UPDATE	$187,500
	2016	Exclusive	Emporia	EMPORIA (CITY)	200.1: Acquisition of Private Real Property (Structures and Land) - Riverine	$548,430
	2015	Shared	Richmond Regional Planning District Commission	CHARLES CITY; CHESTERFIELD; COLONIAL HEIGHTS CITY; DINWIDDIE; EMPORIA CITY; GOOCHLAND; GREENSVILLE; HANOVER; HENRICO; HOPEWELL CITY; NEW KENT; PETERSB..	91.1: Local Multihazard Mitigation Plan	$135,000
	2011	Exclusive	Emporia	EMPORIA (CITY)	602.1: Other Equipment Purchase and Installation	$39,877
	2010	Shared	Richmond and Crater PDC	CHARLES CITY; CHESTERFIELD; COLONIAL HEIGHTS CITY; DINWIDDIE; EMPORIA CITY; GOOCHLAND; GREENSVILLE; HANOVER; HENRICO; HOPEWELL CITY; NEW KENT; PETERSB..	91.1: Local Multihazard Mitigation Plan	$120,000

1. Source: FEMA Hazard Mitigation Projects-V2 dataset from fema.gov

2020 Census Tract

Suffolk city

VDEM GIS | 5/21/2021

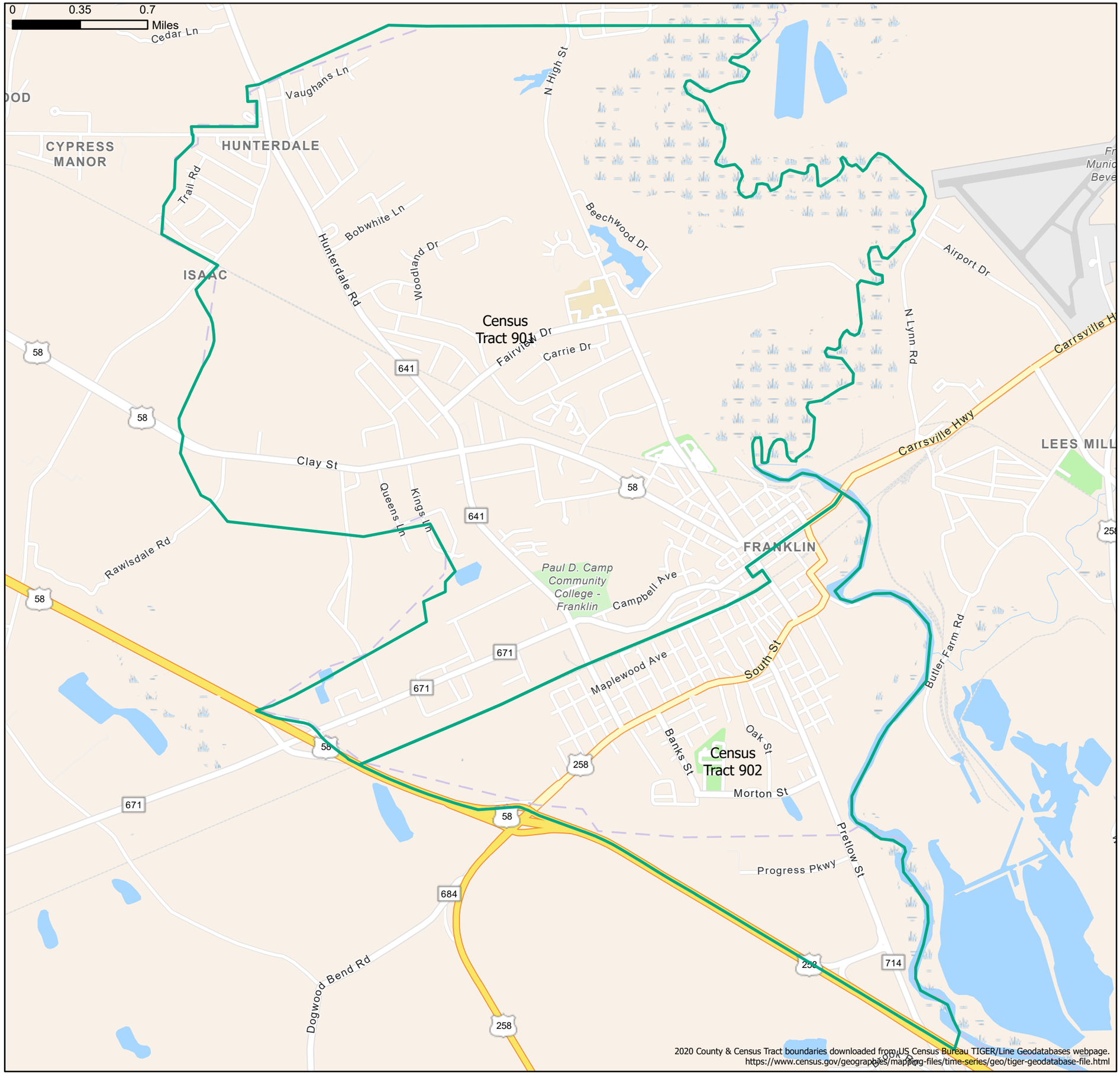


2020 County & Census Tract boundaries downloaded from US Census Bureau TIGER/Line Geodatabases webpage.
https://www.census.gov/geographies/mapping-files/time-series/geo/tiger-geodatabase-file.html

2020 Census Tract

Franklin city

VDEM GIS | 5/21/2021



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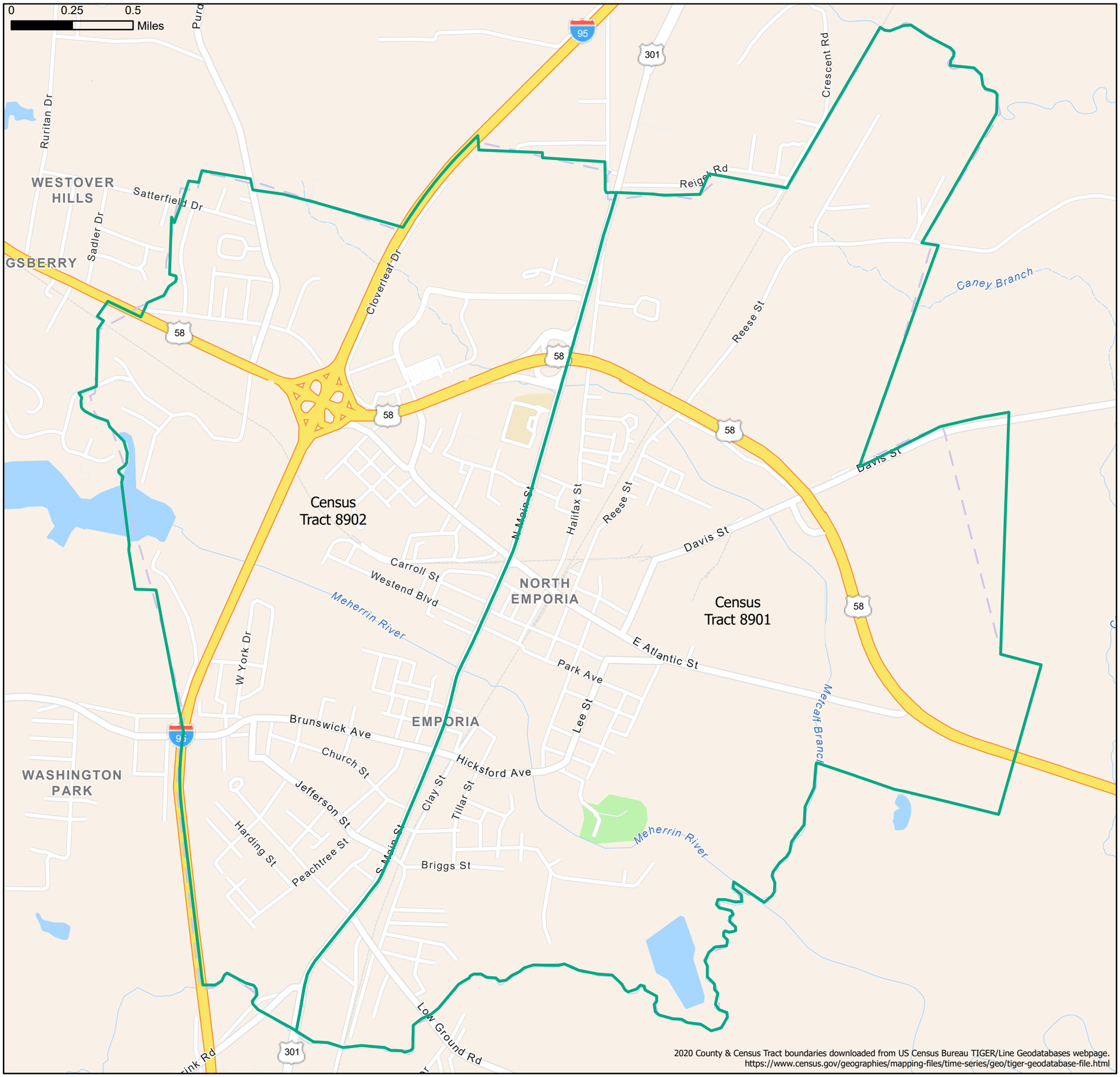
Emporia city

2020 Census Tract

VDEM GIS | 5/21/2021



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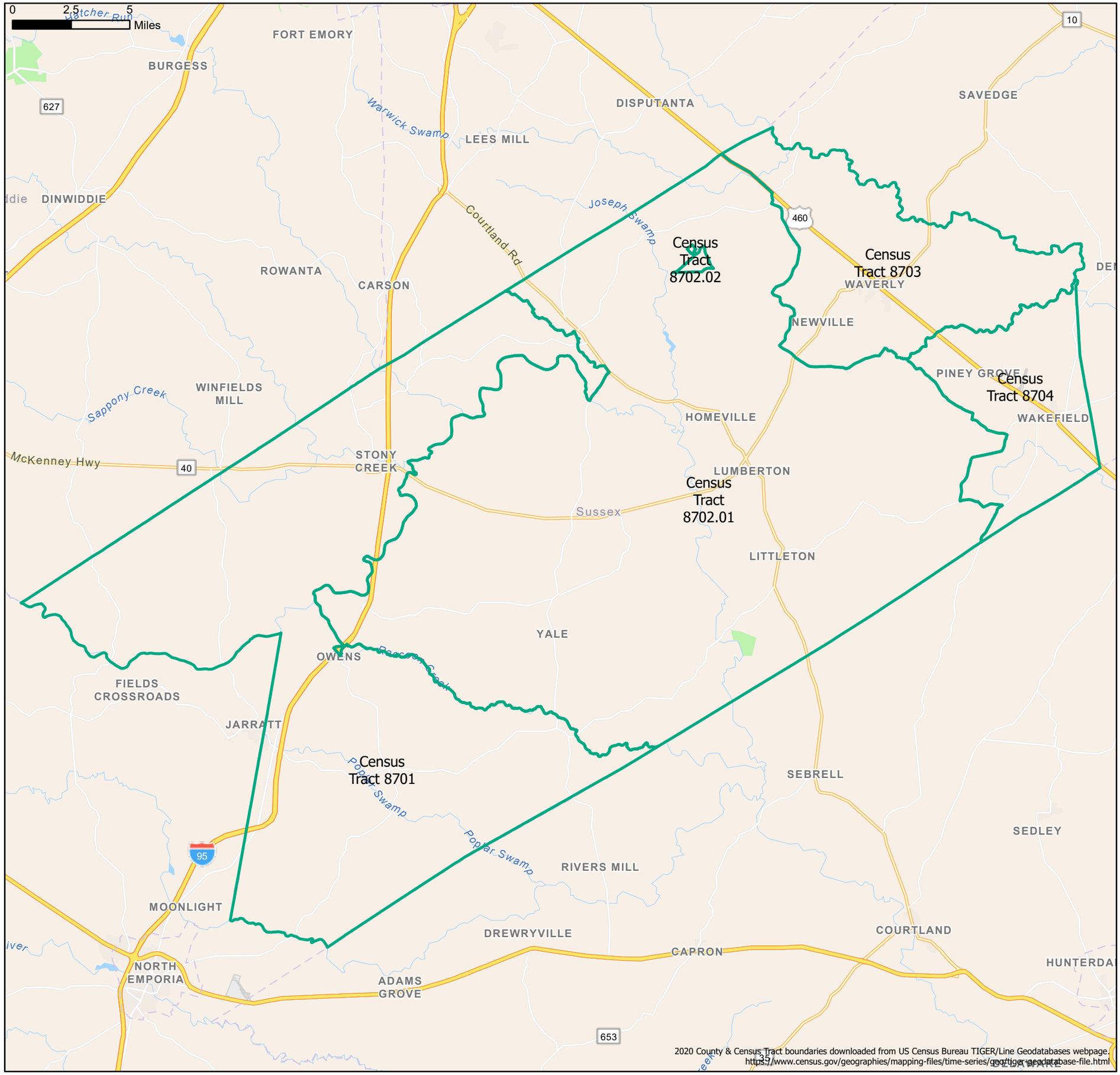
https://www.census.gov/geographies/mapping-files/time-series/geo/tiger-geodatabase-file.html

2020 Census Tract

Sussex County

VDEM GIS | 5/21/2021

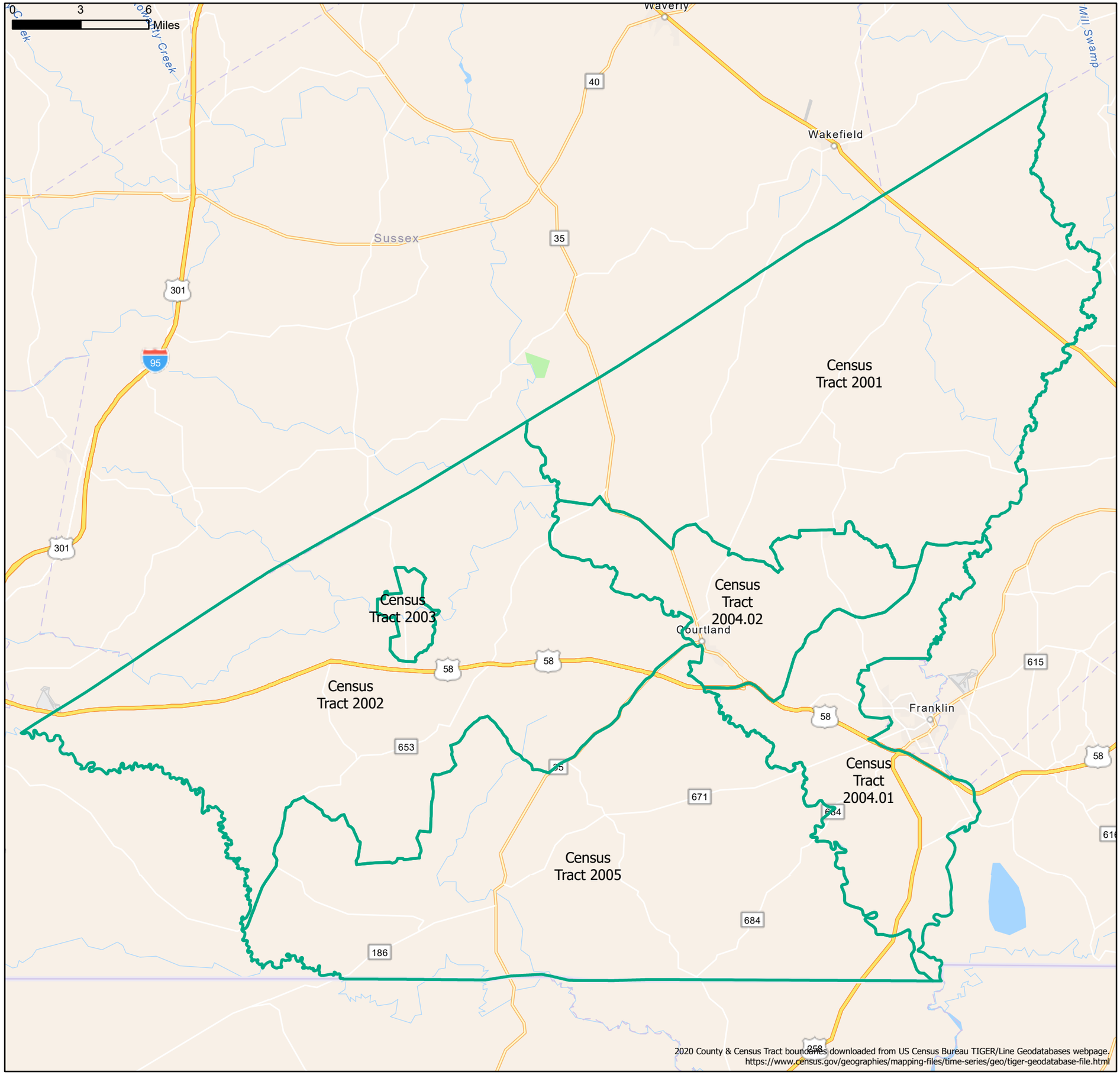


2020 County & Census Tract boundaries downloaded from US Census Bureau TIGER/Line Geodatabases webpage, https://www.census.gov/geographies/mapping-files/time-series/geo/tiger-geodatabase-file.html

2020 Census Tract

Southampton County

VDEM GIS | 5/21/2021



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